

THE AUTOMOBILE

WEEKLY

NEW YORK—THURSDAY, JULY 4, 1907—CHICAGO

10 CENTS

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— ON —

"Firestone"

PNEUMATIC TIRES

by a 6-cylinder Ford car on a Detroit circular track, June 21st and 22nd

The Test:

Twelve hours of the racing was done on tires made by three of the largest other makers. The other twelve hours were run on "Firestone" Tires.

The Result:

"Firestone" Tires made the greater mileage with one-fourth the tire changes. Also, "Firestone" Tires made a perfect score on four lighter cars, averaging 30 miles per hour, and came through without a scar.

The Reason:

UNVARYING HIGH QUALITY YIELDS UNVARYING GOOD SERVICE.

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The largest exclusive rubber tire makers in America

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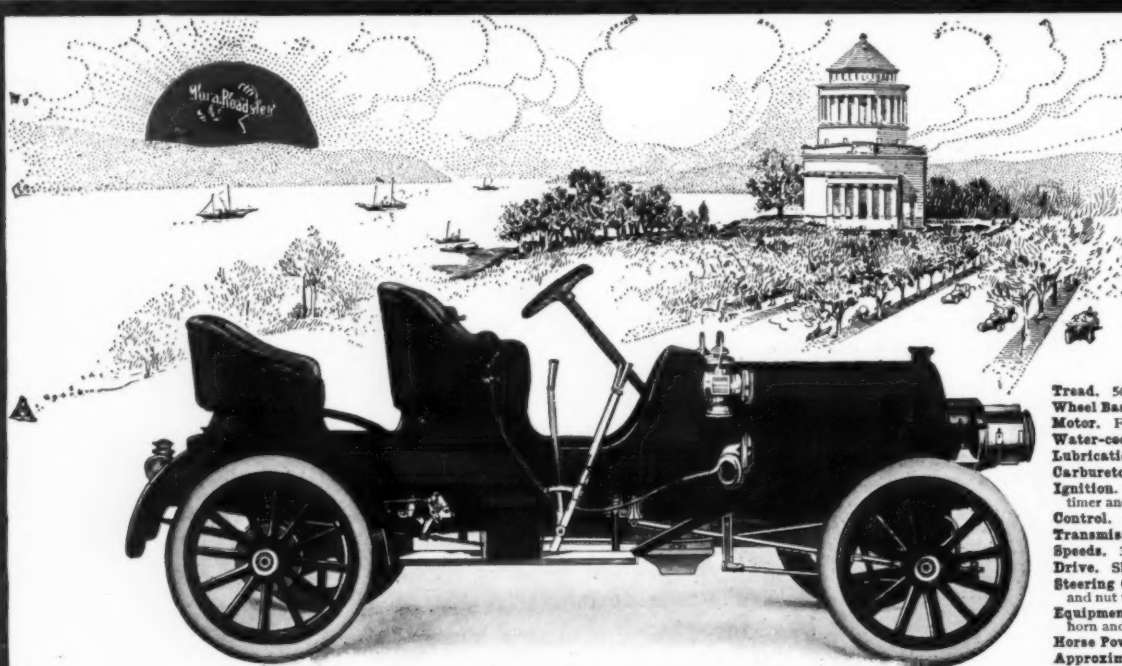
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Specifications:

Rear Axle. Timken Roller bearing
Front Axle. Tubular ball bearing
Springs. Transverse semi-elliptic front spring, platform type rear spring
Wheels. 32 inches, wood, artillery type
Tires. 32 x 3 1-2 Regular Clincher, G. & J. raised tread
Brakes. Two external, two internal, operating on drums attached to wheels
Tank Capacity. 15 gallons of gasoline

Tread. 56 inches
Wheel Base. 98 inches
Motor. Four cylinder 4 x 5 1-8, cast in pairs
Water-cooler. Capacity, 5 gallons
Lubrication. Splash system
Carburetor. Mora
Ignition. LaCosta Magneto, also coil, timer and storage battery
Control. Throttle and spark
Transmission. Sliding nickel steel gears
Speeds. 3 forward and reverse
Drive. Shaft
Steering Gear. Irreversible wheel, screw and nut type
Equipment. 2 oil side lamps, 1 tail lamp, horn and tools
Horse Power. 24. Mechanically Right.
Approximate Total Weight. 1750 lbs.
Price. \$2300

Built to meet the demand for a light, high grade, well accommodating driver, guest, and mechanic. Supplied consisting of four unit LaCosta coil, timer, and storage wired to separate set of spark plugs and working insures a smooth running reliable motor and transmission. Large tires in proportion to weight of car insure freedom from tire trouble. Its moderate wheel base and light weight make the Racytype Roadster both a good cross country and around town car, because it is fast enough to go the pace that exhilarates cross country and easy to handle in traffic in town. The speediest light car at anywhere near the price.

Mora Roadster
MECHANICALLY RIGHT

designed and carefully constructed, speedy road car, with the highest possible grade electrical equipment, battery, and LaCosta high tension magneto, each system pendently. Mora Mechanically Right construction

MORA MOTOR CAR COMPANY,

18 MORA PLACE, NEWARK, N. Y.

WORKS, NEWARK, NEW YORK

THE AUTOMOBILE

THE GRAND PRIX



PRESS BUREAU, NEAR DIEPPE, July 2.—At an average speed of 70.61 miles an hour, Felice Nazzaro, on a Fiat machine, has won the 478.4 mile speed test of the Automobile Club of France against thirty-seven of the world's most formidable flyers. The pace broke all world's records. Last year, on practically the same machine, the dashing Italian was an indifferent second in the Grand Prix, being defeated by Szisz on a Renault. His record this year is particularly brilliant, he being the winner of the Targa Florio, the German Emperor's Cup and finally the French Grand Prix, the *dernier mot* of the automobile world. His car was fitted with Michelin tires and rims and Simms-Bosch magneto.

Second place goes to François Szisz, last year's winner of the Grand Prix, who, again on a Renault, finished in 6:53:10. France secures all other positions, as follows: (3) Baras, Brasier, 7:05:05 3-5; (4) Rougier, Dietrich; (5) Caillols, Darracq; (6) Rigal, Darracq; (7) Barillier, Brasier; (8) Garcet, Bayard-Clement; (9) Fitz Shepherd, Bayard-Clement.

On the start being given promptly at six o'clock, Lancia, who had the good luck to draw first place, rushed away with his usual impetuosity, going round the 77-kilometer triangular course in 41:33, equal to an average of 68 miles an hour. Excepting that Heath had a little difficulty in starting his Panhard, and was left behind by Christie, timed out one minute later, all the starts were made successfully, the machines immediately setting a faster pace than has ever been known in any automobile race in Europe. Richat's Aquila-Italiana was the only non-starter.

Three minutes after the last competitor had gone away, Lancia finished his round amid the strains of a military band and hoarse cheers from thousands of throats. His time, though fast, was not to be the best of the day, for sturdy Duray soon rejoiced the hearts of French spectators and admirers by a forty-minute trip. When Wagner roared through on a Fiat and the figures on the huge score board indicated 39:53—which means that he had traveled at 74.5 miles an hour—a yell of triumph went up from Italian and French throats, the former for the machine, the latter for the man. Hanriot, on a Darracq, made a good showing



- 1.—NAZZARO, Fiat (Italy)
Time 6:46:33
Average, 70.61 miles per hour.
- 2.—SZISZ, Renault (France)
Time, 6:53:10.
- 3.—BARAS, Brasier (France)
Time, 7:05:05 3-5



on the first round, as did Szisz (Renault), with 40:39.

After the first three rounds the race settled down to a desperate struggle between Nazzaro, Lancia, Duray, Szisz and Wagner. Szisz was running with remarkable regularity and seemed likely to repeat last year's performance. Duray made a brilliant spectacular display, driving his huge Dietrich in a superb manner. When he finished the fifth round, half the race, he made his first stop on the wood side track, where the gasoline stations were located. Jumping from the machine the instant it stopped, he hurled

the cans of gasoline and water like one endowed with demoniac strength, took on board his full allowance and was away again—to a glorious victory, as it appeared—before the crowd could sufficiently recover from its astonishment to send up a rousing cheer. Sixth, seventh and eighth rounds were covered without any flagging of the killing pace, when just as the rumor was going round the stands "Duray is the winner," an official note appeared on the blackboard that the French champion was down and out with a broken bearing.

Christie's Ill-luck Followed Him to France.

Walter Christie, starting twelfth, had not been heard of when Lancia and Duray completed their second round. His first round was made in 1:20:13, in which time several had been round twice; his second round was completed in 2:9:2 elapsed time, and his fourth in 4:58. A broken valve caused serious delay, and a seized clutch finally eliminated the American candidate. Fitz Shepherd, driving the late Albert Clement's machine, did some fast running, but owing to minor troubles failed to get near the leaders. Heath's Panhard broke down without injuring the driver. At the right-angle turn at Londinières Richez, driving the third Renault, missed the turn and upset. Bablot, who was just behind him on a Brasier, swerved into the ditch to avoid an accident and damaged his machine. Richez was unable to continue, but Bablot after a little delay got under way again. Wagner's brilliant debut finally terminated in a ditched and abandoned machine. Mercedes again failed to make a showing, and English and

Belgian machines were no more successful than the American. On the last round, when almost certain of third position, Lancia's gasoline supply became exhausted and he was stranded by the roadside just as in the Gordon Bennett race of 1905. Strangely, it was again a Brasier, this time driven by Baras, which forged ahead and secured a victory at the expense of the Italian.

Animated Scene at the Starting Line.

PRESS BUREAU, NEAR DIEPPE, Tuesday, July 2.—Just as the town clocks in quaint Dieppe, three miles away on the coast line, were giving their six morning clangs, Lancia's huge Fiat was roaring with a harsh voice on the edge of the wooden loop track running into the upper leg of the 77-kilometer Dieppe circuit. The usual *êtes vous prêt—cinq, quatre, trois, deux—allez*, distinguishable above the roar of the exhaust only by those at the starter's elbow, and the intrepid Italian dashed off followed by a roar such as had never before been heard at a European auto race. With thirty-eight machines starting at intervals of one minute there is no lack of interest and no time to be lost on the part of the drivers and officials. In Indian file they stand on the wooden track, the first one with its wheels on the white line indicating the starting and finishing point, advancing with clock-like regularity at the call of the starter, cranking up as quickly as possible and darting away on the life and death struggle. There is less roar and smoke than on previous occasions, for not a drop more than 50.84 gallons of gasoline is available for the 478.4 miles to be covered at fantastic speed. Each man has drawn off a quart from his regulation allowance to prime his motor, but it is too precious to waste, and cranking at the latest possible moment is the rule.

the event is unique; the feverish anxiety of the start, a dash of speed in the distance, the enthusiasm of the enormous crowds securely walled behind stout barricades fringed by red trousered infantrymen accoutred for active service, and away in the rear—if one cared to look in that direction—the blue waters of the English Channel sparkling in the bright morning sun which has succeeded the rain and gray skies of yesterday. Fifty thousand persons are estimated to be massed in the grandstands, with an additional 150,000 scattered round the course. Americans are not very numerous, Jefferson DeMont Thompson, of the A. A. A. racing board, being the only prominent automobilist. Other Americans were visitors who happened to be touring France.

American interest is centered in Walter Christie at the wheel of the front drive machine which he built on the banks of the Hudson, starting twelfth, with sober Le Blon ahead of him on a Panhard, and Salzer, the acrobatic driver, behind him on a Mercedes. At the last moment Fitz Shepherd has entered on the scene and is piloting 32-BC—the Bayard-Clement, which Gaudermain would have driven had not one of the saddest of accidents removed Albert Clement from our midst. All three Bayard-Clement machines have been sold, Albert Clement's mount to M. de Bourbon, who put Pierre Garcet in charge of it; the second to Baron de Dorlodot, with Venus, young Clement's mechanic in many a race, now driving; and the third to Fitz Shepherd. No. 5 arouses Yankee interest, for although the Porthos is built almost at the doors of Paris, Striker, who is at the wheel, does not hide the fact that he is a naturalized American. Page, too, on one of the Motoblocs from Bordeaux, has a real interest in the land of the Stars and Stripes.



THE GRAND PRIX CIRCUIT NEAR DIEPPE.

Total length of the circuit is 76 kilometers 988 meters, which, allowing for the turns, is officially considered as 77 kilometers (47.84 miles). Ten rounds have to be covered by Grand Prix racers, giving 478.4 miles. Sporting Commission Cup machines cover only six rounds, or 287 miles.

Fuel allowance for Grand Prix machines is 50.84 gallons, equal to 9.59 miles to the gallon. Sporting Commission Cup machines are allowed 15.2 gallons, requiring 19 miles per gallon.

Away over to the right, across country, a flash can be seen at intervals of one minute as the machines speed along the second leg of the triangle toward Londinière. As a spectacular display

Rigal, on No. 30 Darracq, which Wagner deserted some time ago, receives a sympathetic send off, for everybody knows that half his fees and half his winning premium—if he wins—will be handed over to the widow and children of Marius Pin, who was killed on the same car down at Rambouillet but a few weeks ago. Nazarro, the hero of Sicily and the Taunus, is distinctly favorite; Lancia is in good favor; though Wagner receives a rousing cheer it is intended more for the driver than for the machine which he mounts. The feeling of certain individuals can be gauged by the fact that they would have shut out the Fiat team on the ground that the cars did not comply with Art. 3, declaring that "each constructor shall have the right to enter three cars." The application of such a rule would have had a boomerang effect, disqualifying three Darracqs and the three Bayard-Clements at the same blow, and was wisely dropped.

Order in Which the 38 Machines Got Away.

Full list of starters, together with their time, is as follows. It will be noted that numerous changes have been made since the first official list of drivers was produced:

Car	Country	Driver	Start
1. Fiat (Italy)	Italy	Lancia	6:00
2. Corre	France	D'Hespel	6:01
3. Darracq	France	Caillols	6:02
4. Lorraine-Dietrich	France	Duray	6:03
5. Porthos	France	Striker	6:04
6. Dufaux-Marchand	Switzerland	Dufaux	6:05
7. Bayard-Clement	France	Garcet	6:06
8. Motobloc	France	Page	6:07
9. Renault	France	Szisz	6:08
10. Germain	Belgium	Degrals	6:09
11. Panhard-Levassor	France	Heath	6:10
12. Christie	America	Walter Christie	6:11
13. Mercedes	Germany	Salzer	6:12
14. Welgel	England	Harrison	6:13
15. Gobron-Brillie	France	Rigolly	6:14
16. Aquila-Italana	Italy	Richat	Retired
17. Brasier	France	Barillier	6:16
18. Fiat	Italy	Nazzaro	6:17
19. Darracq	France	Rigal	6:18
20. Lorraine-Dietrich	France	Rougier	6:19
21. Bayard-Clement	France	Venus	6:20
22. Motobloc	France	Pierron	6:21
23. Renault	France	Edmond	6:22
24. Germain	Belgium	Roch-Brault	6:23
25. Panhard-Levassor	France	Le Blon	6:24
26. Mercedes	Germany	Jenatzy	6:25
27. Welgel	England	Laxen	6:26
28. Brasier	France	Baras	6:27
29. Fiat	Italy	Wagner	6:28
30. Darracq	France	Hanriot	6:29
31. Lorraine-Dietrich	France	Gabriel	6:30
32. Bayard-Clement	France	Fitz Shepherd	6:31
33. Motobloc	France	Courtade	6:32
34. Renault	France	Riches	6:33
35. Germain	Belgium	Perpere	6:34
36. Panhard-Levassor	France	Dutemple	6:35
37. Mercedes	Germany	Hemery	6:36
38. Brasier	France	Bablot	6:37

A distinctive color for the cars of each nation was adopted, as follows: Germany, white; America, white and red; England, green; Belgium, yellow; France, blue; Italy, red; Switzerland, yellow and red. A letter or combination of letters identified each team, the combination being made as far as possible of the initials of the firm. Individual cars in each team were numbered 1, 2 and 3.

Distinct from the Grand Prix there are two other contests held at the same time, one the Sporting Commission Cup, for machines not consuming more than 7.26 gallons per 62.1 miles, and the other for tires. The smaller racers were sent away on the special loop track at intervals of five minutes, the first one leaving at nine o'clock. They were only required to cover six rounds, giving a total distance of 287.07 miles with a gasoline allowance of 15.2 gallons, which approximates 18 miles to the gallon. All Sporting Commission racers had to be painted iron gray with

their starting number in red. The nine machines with their drivers are:

1. Gillet-Forest (De la Touloubre).
2. Darracq (De Langhe).
3. Hermes H.I.S.A. (Depasse).
4. Porthos (Collin Defries).
5. La Buire (P. Dumaine).
6. Darracq (Demogeot).
7. Hermes H.I.S.A. (Moulin).
8. La Buire (Mottard).
9. La Buire (Dessaigne).

With the exception of the Hermes H.I.S.A. all the machines are French. Public interest in the tire test died as soon as it was discovered that only three firms, Hutchinson, Falconnet-Perodeaud and Boland, had entered. Better known firms, such as Michelin, Continental and Dunlop, engaged tire stands on the course, but abstained from the competition.

Some Previous Speed Records:

Last year's Grand Prix, run on two days over a total distance of 745 miles, was won by Szisz (Renault) at an average speed of 62.7 miles an hour. The fastest rounds on each day were covered respectively at 73 and 72 miles an hour, the circuit being 62 miles compared with 47 miles this year. In the Gordon Bennett race in Auvergne Théry averaged 48.8 miles an hour; the fastest time for any Gordon Bennett race was also by Théry, in Germany, when he averaged 59.6 miles an hour. On the Ardenes circuit in Belgium, which allows of a very just comparison with the Grand Prix, Duray averaged 66.05 miles an hour on a total distance of 372 miles. One hundred kilometers, flying start, were reeled off by Wagner at a rate equaling 70.5 miles an hour, which, although the official record for that distance, is considerably below the speeds attained on the Sarthe course. In Vanderbilt contests Hémerly set the highest average in 1905, when he covered 283 miles at the rate of 61.49 miles an hour. Wagner had almost as good a record with 61.43 miles an hour. Heath, in 1904, only averaged 52.2 miles an hour.

NEW MASSACHUSETTS LAW IN EFFECT AUG. 1.

BOSTON, July 2.—Governor Guild has signed the new automobile registration bill. The bill does not mention the much-mooted sliding scale registration system, but provides for a flat annual registration fee of \$5 for automobiles and \$2 for motorcycles.

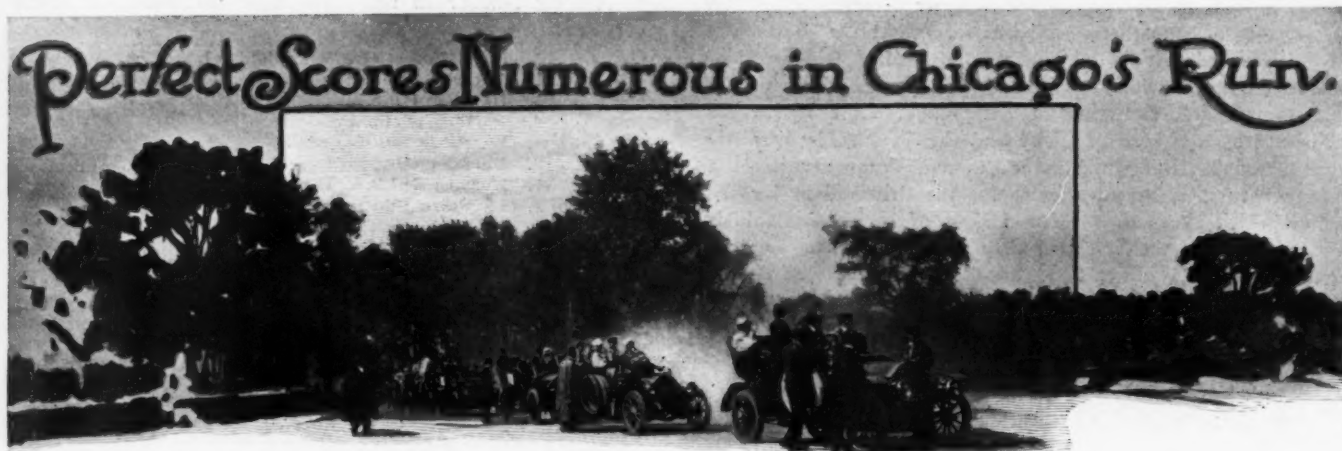
The fact that the new law becomes effective August 1 will mean that the 15,000 or more automobile owners in Massachusetts will be obliged to have their cars re-registered, and will have to pay \$5 for the process, no matter if they have just paid \$2 under the old law. Moreover, the first of next January they will have to pay another \$5, as the law provides for an annual registration on the first of January of each year.

HEAVY FINANCIAL LOSS ON GERMAN RACE.

BERLIN, June 25.—\$40,000 constitutes the total loss of the German Imperial Automobile Club on the Emperor's Cup race held on the Taunus circuit. The organization, the most elaborate of any contest, called for an expenditure of \$100,000, to meet which the organizers have only the engagement fees and the guarantee fund of \$20,000 raised by the national club. Largely owing to the bad weather, very little was obtained from the rent of grandstands.

NO BAGGAGE TRUCKS FOR A. A. A. TOURISTS.

At first it was thought that the custom of having a baggage truck accompany the A. A. A. tour would be followed again this year and the Reliance two-cycle truck was to have been given the honor for the 1907 event, but it was recently decided by the committee that they would not undertake to carry the baggage of the contestants in this year's tour, so there will be no official baggage trucks as hitherto.



CHICAGO, July 1.—Eighty-six starters, fifty-five machines with perfect scores, is the epitomized result of the reliability test planned by the Chicago Motor Club and the Chicago Automobile Trade Association and consummated June 28.

When last year's event was brought forth 88 machines responded; this year 95 entered their names on the list, and of this number 86 came to the starting line for the 148-mile run through Waukegan, Half Day, McHenry, Elgin and Aurora. The small ones only tackled the 148 miles trip, the big fellows running on and adding an additional 26 miles to their task. All, however, finished at Grant's Monument in Lincoln Park.

Bonnets were sealed down, the engine must never cease to turn over, and no water must be added to the quantity on board at the start. Gasoline and oil could be shipped aboard in any desired quantities, and no limit was placed on number of tires to be used or any penalty for attentions to them en route.

Under such rigorous conditions the percentage of perfect scores is surprising. It is equally satisfactory to note that they are well proportioned through all classes. In class I, machines listed under \$1,500, 12 out of 18 finished without a spot against them; class II, cars listing \$1,500-\$2,300, produced 7 clean scores out of 10 starters; class III, machines over \$2,300, 26 out of 39; in class IV, roadsters listing over \$1,500, 10 out of 12 starters finished with perfect scores. Of the 29 which incurred penalty points for various reasons, 7 only failed to finish the distance, showing that mechanical troubles of a serious nature were rare.

A side issue of the tour was a team contest in each class, prizes being offered for the team of three cars of the same make which did the best work. Twelve teams entered, of which Pierce Arrow and Haynes tied with perfect scores. National's chance was spoiled by Temple stalling his engine, while the Locomobile team lost through Leiser incurring 25 penalty points.

Machines That Finished with Perfect Scores.

Entrant	Class	Car	Driver
1—H. Paulman & Co.	3	Pierce Arrow	J. V. Lawrence.
2—E. W. McCready	3	Pierce Arrow	E. W. McCready.
4—Howard Hoopes	3	Haynes	W. H. Hoopes, Jr.
10—Branstetter M. Co.	3	Dragon	Fred T. Wilkins.
12—Matheson Co., N. Y.	3	Matheson	E. G. Buck.
13—Maxwell-B.-C. Co.	3	Maxwell	C. W. Price.
14—H. C. Shoemaker	3	Shoemaker	H. C. Shoemaker.
15—Wayne Motor Co.	3	Wayne	Frank Cressnel.
16—Locomobile Co. of A.	3	Locomobile	A. J. Banta.
18—Electric Vehicle Co.	3	Columbia	H. G. Cairns.
22—Maxwell-B.-C. Co.	3	Maxwell	H. M. Simpson.
23—Maxwell-B.-C. Co.	3	Maxwell	S. C. Skinner.
25—Githens Bros. Co.	3	Oldsmobile	H. A. Githens.
29—H. Paulman & Co.	3	Pierce Arrow	Paul Hofmann.
30—O. W. Lehmann	3	Locomobile	O. W. Lehmann.
32—Jackson Auto Co.	3	Jackson	R. Purcell.
33—Electric Vehicle Co.	3	Columbia	Roy Harrington.
34—R. W. Cook	3	Royal Tourist	R. W. Cook.
37—Frank Nutt	3	Haynes	Frank Nutt.
38—Pierce Engine Co.	3	Pierce-Racine	L. F. Stevens.
39—Bird-Sykes Co.	3	Corbin	G. H. Bird.
42—Buick Motor Co.	3	Buick	F. H. Moran.
43—Adams & Engs.	3	Prayer-Miller	Jack Barnes.
45—T. B. Jeffery & Co.	3	Rambler	Ted Collier.
49—C. A. Weidley	3	Premier	W. C. Brown.
50—H. O. Smith	3	Premier	H. Hammond.
52—C. Winslow	3	Haynes	C. W. Birchwood.
53—Ralph Temple	3	National	J. Aitkin.
55—Triumph M. Car Co.	3	Triumph	C. H. Tucker.
56—J. B. Diebler	3	Haynes	Ed. Noble.
57—W. E. Johnson	3	Packard	C. L. Johnson.
58—Ford Motor Co.	3	Ford (six)	R. P. Rice.
59—L. J. Reed	3	Simplex	C. Hinkelman.
60—Ralph Temple	3	National	H. L. Jenkins.
61—Diamond T. M. Co.	3	Diamond T.	C. A. Tilt.
63—G. E. Holmes & Co.	3	Queen	B. G. Tiffany.
65—Buick Motor Co.	3	Buick	W. R. Willett.
66—Adland Motor Co.	3	Lambert	V. E. Adland.
68—W. C. Sears	3	Craig-Toledo	W. C. Sears.
69—Moline Auto. Co.	3	Moline	W. H. Van der Voort.
70—C. P. Warner & Co.	3	Moline	E. W. Nicholson.
72—O. F. Weber & Co.	3	Pope-Hartford	G. Schonneck.
73—Jackson Auto Co.	3	Jackson	F. L. Holmes.
76—Ford Motor Co.	3	Ford	T. Hay.
78—Maxwell-B.-C. Co.	3	Maxwell	C. Harmon.
79—Jackson Auto Co.	3	Jackson	H. A. Bisby.
80—Jackson Auto Co.	3	Jackson	E. F. Scheffer.
82—Buick Motor Co.	3	Buick	Frank Wing.
84—Holsman Auto Co.	3	Holsman	W. Hildreth.
88—Ford Motor Co.	3	Ford	A. M. Brianza.
89—Maxwell-B.-C. Co.	3	Maxwell	A. Holsman.
90—Ralph Temple	3	Jackson	A. J. Nicolet.
91—W. Elsom, Jr.	3	Maxwell	W. Elsom Jr.
92—Hagmann & H.	3	Cartercar	C. E. Hamnerly.
95—Mason M. Car Co.	3	Mason	F. L. Dusenberg.

Machines That Were Penalized.

Entrant	Class	Car	Driver	Points
6—Knox Auto Co.	3	Knox	R. T. Alcott	908
7—W. W. Shaw	3	Berliet	W. W. Shaw	25
11—W. K. Young	3	Thomas	E. H. Young	50
17—Locomobile Co.	3	Locomobile	F. Leiser	75
19—Ford Motor Co.	3	Ford Six	W. G. Ribble	25
20—Cornish-Fried'g Co.	3	Aerocar	C. Friedberg	269
26—F. W. Cornish	3	C. F. car	L. K. Cooper	35
27—Cornish Fried'g Co.	3	C. F. car	J. Duke	100
31—Pullman M. Car Co.	3	Chicago Pullman	R. W. Harroun	85
35—M. A. Mead	3	Pope-Toledo	R. A. Mead	100
46—Knight & Kilbourne	3	Silent Knight	D. Kilbourne	25
48—Premier M. Mfg. Co.	3	Premier	J. W. Moore	25
51—Chicago Auto G. Co.	3	Gaeth	B. Hedges	75
54—Ralph Temple	3	National Six	R. Temple	25
64—G. E. Holmes & Co.	3	Queen	Mrs. F. Thayer	25
67—White Company	3	White	C. E. Denzer	75
74—Mora Motor Car Co.	3	Mora	W. H. Birdsall	125
77—W. B. Jameson	3	Maxwell	W. B. Jameson	65
83—T. B. Jeffery & Co.	3	Rambler	R. Schumacher	65
85—C. H. Bryan	3	Holsman	C. H. Bryan	15
86—Holsman Auto Co.	3	Holsman	B. Heinemann	25
87—A. M. Brianza	3	Ford	A. M. Brianza	5
*3—Branstetter M. Co.	3	Moon	H. P. Branstetter	..
*5—Branstetter M. Co.	3	Dragon	D. Boswell	..
*24—Githens Bros. Co.	3	Stearns	C. Chevalier	..
*41—Kline & Co.	3	Napier	Fred Kline	..
*62—Ralph Temple	3	Jackson	J. D. McKean	..
*75—Knox Auto Co.	3	Knox	W. W. Hodge	..
*93—H. B. Staver	3	Staver	H. B. Staver	..

Standing of the Teams in the Different Classes.

CLASS I

Jackson, 79, 80 and 90—perfect scores.
 Ford, 76, perfect; 87, penalized 5; 88, perfect.
 Holsman, 84, perfect; 85, 15 points; 86, 25 points—total, 40.
 Maxwell, 77, 65 points; 78, perfect; 89, perfect—total, 65.

CLASS II

Maxwell, 13, 22 and 23, perfect.
 Premier, 48, 250 points; 49, perfect; 50, perfect.
 Dragons, did not finish; 10, perfect; 28, did not start.
 Jackson, 32, perfect; 62, did not finish; 73, perfect.

CLASSES III AND IV

Pierce, 1, 2 and 29, perfect.
 Haynes, 37, 52 and 56, all perfect.
 National, 53 and 60, perfect; 54, 25 points—total, 25 points.
 Locomobile, 26 and 30, perfect; 17, 75 points—total, 75 points.



FROM Cleveland, in the early morn of Wednesday, July 10, there will start the fourth annual touring cavalcade of the American Automobile Association, present indications being that a hundred and more cars will participate in what will be the greatest affair of the kind in the history of automobiling. The touring car entrants will strive for perfect scores and the possession of the Charles J. Glidden trophy, while the runabout division will contend for the ownership of the Frank B. Hower trophy, offered by the chairman of the Touring Board, who has worked conscientiously and successfully in planning the details of the 1,500-mile journey which will have its ending in New York City on Wednesday, July 23.

The original plan of scoring club teams competing for the Glidden trophy having been found, upon careful reconsideration, to be disadvantageous to the smaller teams, the Touring Board's executive committee, which had accepted the finding of the manufacturers in the first place, listened to the protests of entrants and last week modified the rules in such a manner as to give the minor teams the same chance as the larger ones.

Preceding the start at Cleveland the Cleveland Automobile Club will entertain the entrants on the previous night. Chicago will extend the glad hand through its two clubs, and there will be more or less hospitality all along the line. It might be remarked, however, that as the tour progresses its participants will gradually adopt the early-to-bed habit with increasing unanimity.

A Preliminary Scurry Over Part of the Route.

A four and a half day trip of interest to those who are girding up their loins for the tour was made recently by the first of the 1908 Peerless cars under the guidance of Designer Charles Schmidt, with Vice-President E. H. Parkhurst as one of his companions. The run was primarily to test out the Cleveland factory's product and was consequently undertaken under touring conditions, with a full load of passengers and no elimination of baggage or fittings. At the same time it gave an excellent opportunity to study road conditions over the severest part of the Glidden Tour route—the Allegheny Mountains and the sections where road building is not.

The run was begun on Sunday morning, June 16, when the car left Cleveland running to Canton, O., for luncheon. During the same afternoon the trip was continued to Beaver, Pa., where the party stopped for the night. On Monday the road lay through Pittsburg as far as Bedford Springs. On Tuesday, over the mountains the road led to Baltimore. On Wednesday the run was from Baltimore to Philadelphia, on Thursday from Philadelphia to New York, a half day only being consumed in the latter trip.

Canton was the first stop, and to reach it the road led through Bedford, Twinsburg, Hudson, Tallmadge, Monroe Falls, Springfield, Uniontown, New Berlin. At Canton there was luncheon at the Courtland House, a modern fireproof hotel which will be the

lunching place for the tourists Friday, July 19. A. B. Tucker tells of the trip in this most interesting manner:

"We departed from Canton by East Tuscaroras street at 2:49 in the afternoon, which is somewhat later than the hour at which the big tour will start. The city streets and the road into which they lead are not good for more than a mile. Then the tourists will plunge into a fair dirt road for about four miles, and following that a stretch of some ten miles, a very bad, hard clay highway with many turns on hills. But these troubles will be offset by delightful scenery which begins to flash upon the eye of

the passenger soon after leaving Osnaburg.

"Lisbon is reached through a road cut into the mountain side and a high iron bridge 125 feet below, which is Beaver Creek, one of the prettiest of streams. From this point on there was no further trouble with road directions, for it is a straight highway through to Beaver, by way of Clarkson and Frederickstown. Beyond Frederickstown the water-breaks become more frequent. These devices, contrived by some degenerate of revolutionary days and maintained in all their crude simplicity by the patient custom-followers of this district, are from 12 to 16 inches in height and are made by digging a ditch across the road and at a slight angle—so slight that the ditch almost seems to run straight across the highway. They must be approached cautiously, crossed as much on the bias as possible, and the engine throttled down until there is barely enough power left to lift the rear wheel over the obstruction.

"Beaver was reached at 7:55 in the evening, the odometer registering 426 miles. During the day 117 miles had been covered in about eight hours. This made a running schedule of about fourteen miles an hour. Our experience proved to us that if a



PEERLESS REACHES TOLLGATE AT BELLAIR IN MARYLAND



LOG-KEEPER E. H. PARKHURST AND PILOT CHAS. SCHMIDT.

schedule for the afternoon of July 19 should be made at a greater rate than ten miles an hour many of the cars in the tour will not be able to make the controls. Ten miles an hour will be the utmost which most cars can be expected to make, with comfort to the passengers and safety to the vehicle. It has been intended to run to Pittsburg before nightfall, but the hard road encountered and the hardest road known to be waiting us, made the stop at Beaver an act of discretion.

"The party was up and out of the little Pennsylvania hamlet at 7:25 the next morning. The main road which we traversed was in the throes of the construction of a new trolley road. The road from Beaver is across a bridge into Rochester, a railroad center and a mass of factories and car shops. From there the route follows the Ohio River into Pittsburg. The road out of Pittsburg is an involved one by way of Wilkinsburg, Swissvale and up a very long hill perfectly paved with vitrified brick, following a trolley line as it climbs a mountain, to Braddock. From the top it is a short run to East McKeesport, where begins the old Greensburg pike, which is no race track. It is carved out of the rock and on it are several thousand water-breaks. But it is through the foothills of the Laurel Mountains, and the country through which it passes is as beautiful as any the sun shines on.

"After passing Greensburg the road became even worse than before. It was only a worn way through the sand and boulders, and there had been frequent washouts on the hilltops. But for the greater part of the distance there were few curves. At one point, from the top of a hill, the road can be seen for six miles as it runs straight as an arrow through a valley and up a mountain side. The pike makes its way straight through Youngstown, Ligonier, Jennerstown, Stoystown, Kantner, Wolfsburg, to Bedford. We were tired from the bumps as we drew into Bedford Springs at 6:50 o'clock. This is the night stop for the A. A. A. tourists on July 20, Saturday night.

"Our odometer registered 550 miles at Bedford Springs. This means that we had covered 124 miles since 7:25 in the morning. Allowing for our stop in Pittsburg and at Greensburg for luncheon, and the stops for pictures and bothered horses, we had run about eight and a half hours. The hourly average was not flattering—about fourteen and a half miles. But it will be too fast for the tour schedule.

"The run of the next day was from Bedford to Baltimore. Practically it consists of two distinct portions—first the crossing of four mountains with a better road than had been encountered previously, but with more frequent bumps—and second, the level Hagerstown pike and the good toll roads which follow it. The bad road is followed as far as McConnellsburg, and just beyond that town, by bearing right at the forks, the Hagerstown pike is taken. From Bedford the tourists will pass through Everett, Ray's Hill, Breezewood and McConnellsburg.

"At McConnellsburg the toll gates first begin to be an institution. There are still three mountains to be crossed. One of

the grades is about a four-mile climb. But these would not be difficult if it were not for the water-breaks which are here found most frequently. It is on these descents that the car seems to yearn to float down into the valleys.

"It is a most restful feeling which comes over the tourist as he passes through Mercersburg and realizes that the mountains are sinking into the distance behind him, while ahead is a level, white, clean, smooth, macadam pike, capable of being covered at any reasonable speed with small danger except from teams upon the road. We stopped for luncheon at Green Castle, the last town before crossing the Maryland line.

"The going is good all the way to Baltimore. It is all historic ground and it is a pity that the schedule conditions will preclude stops at Bolivar and Frederick.

"The roads from Baltimore to Havre-de-Grace were the best encountered on the trip. Designer Schmidt opened the throttle and we ran for miles and miles at sixty miles an hour, with the speedometer once hitting 62.

"Of the last half-day of running across New Jersey little need be said here. The route by way of Bristol, Pa., Morrisville, N. J., Trenton, New Brunswick, Metuchen, Rahway, Elizabeth, Newark, is too well known to need comment."

What Two Bisons Deducted from a Run.

Having covered the entire route of the Glidden Tour in nine days from the time they started from Cleveland, George M. Davis and E. C. Richard returned to their homes in Buffalo with the Thomas Speedway Flyer in which they made the trip. Among the many things which the two in the Thomas say they learned regarding this year's tour are:

That very little level country will be seen after the tour leaves Columbus, O.

That it would be well for the tourists to brush up a bit on their Civil War history in order that they may understand the battlefields over which they pass.

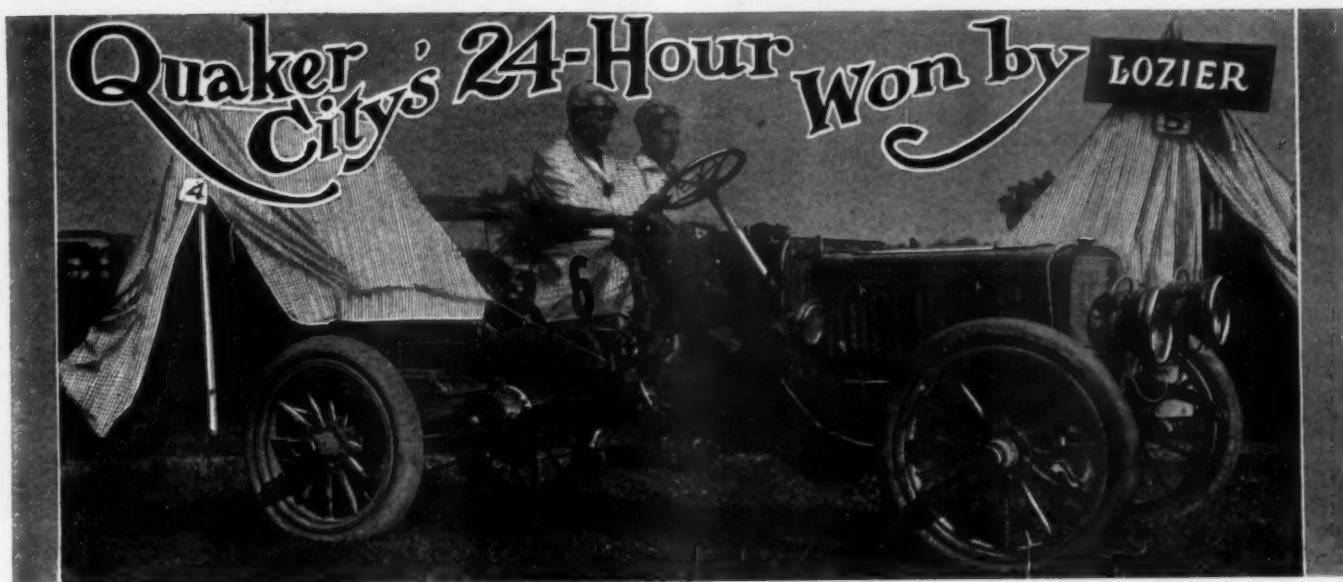
That tolls will amount to much more than they did in Canada last year.

That the people of Maryland, particularly those living on farms, are most cordial to automobilists.

That the tour will not be any easier than it was last year, despite some opinion that it will be.



A BALTIMOREAN GLIMPSE: WASHINGTON MONUMENT.



MICHENER, CHIEF PILOT OF THE WINNING CAR, IN FRONT OF HIS HEADQUARTERS INSIDE THE TRACK.

PHILADELPHIA, July 1.—Marred from the spectators' viewpoint by a pitiless storm, the 24-hour Endurance Derby of the Quaker City Motor Club at Point Breeze track came to a finish at 5:18 last Saturday afternoon, after a most sensational battle. H. A. Lozier's 40-horsepower Lozier captured the honors with a score of 717 miles; the Philadelphia Motor Car Company's 50-horsepower Frayer-Miller finishing second with 711 miles; C. A. Schroeder's 40-60 Darracq, third, 683 miles; Girard Motor Car Company, 30-35 Cleveland, fourth, 564 miles; Philadelphia Motor Car Company's 24 Frayer-Miller, fifth, 507 miles, and Penn Auto Company's 12-horsepower Flying Dutchman, sixth, 379 miles. Four other starters were withdrawn, three of them after being ditched and wrecked.

Up to 3 o'clock Saturday morning everything augured deep cuts into the Soules brothers' figures established at Columbus, O., on July 4, 1905—the only accepted record that could be used for a comparison. The Mercedes "60" had ground out 44 miles in the first hour and the Frayer-Miller began at the second to cut under not only the Soules figures, but its own, made on the same track four weeks ago. At the end of the fifth hour the big air-cooled car had covered 211 miles, as against the Soules' 198 and its own 199.

At the end of the tenth hour—just as the first sprinkle of what later developed into the heaviest rainfall of the season became evident—"Dan" Webster had driven the big Frayer-Miller 412 miles, which was an even 50 miles better than the Soules record and 34 more than his own best. Even at the end of the fifteenth hour, after five hours' driving rain had transformed the entire track into an oily mush, the Frayer's 559 miles was 36 miles ahead of the Soules figures and 30 better than its own.

Indeed, it was not until nearly the end of the eighteenth hour, at 11:18 A.M., that the execrable going put the Frayer one mile behind the record of 616 miles. At this point Webster and Knepper had a lead of 31 miles over Michener and Mulford in the "40" Lozier. The "F.-M." crew now seemed to be weakening and changed often, both men driving on their nerve.

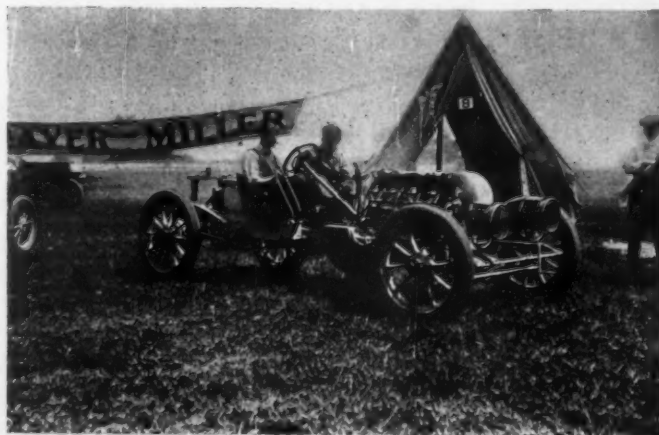
The completion of the nineteenth hour saw the gap separating the contenders reduced to 23 miles. The next two hours saw this lead still further cut to 10 miles, and now ensued a fierce battle between pluck and tired nature. Knepper, as a result of inflammation of the eyes due to the oily slime which trickled into them behind his goggles, could not see at all, and Webster, who had done the bulk of the driving, was in a state of collapse. He insisted, however, on going ahead. The 24 Frayer-Miller, which was in fifth place, was temporarily withdrawn and Lawwell, one of its drivers, was put up in Webster's place. Before this

was done, however, at 3:05 P.M., the Lozier had gained the lead. The completion of the twenty-third hour showed the Lozier eight miles to the good, and as the rules required all cars to be on the track and running, to be considered as finishers, the Frayer "24" crew had to go back to their car, and Ernest Kelly, who gained fame last winter by piloting the Thomas to its record-breaking non-stop record, volunteered to relieve Webster. The latter, having been struck in the eye by a piece of flying mud, had temporarily lost control of his car, which had skidded into the fence. "Dan," to shield himself, put out his hand to ease the force of the impact, and received a frightful cut on the wrist. That finished him. The ambulance was called.

Kelly tried in vain to reduce the Lozier's lead, but Michener and Mulford would not be denied, and when Wayne Davis' gun cracked at 5:18 their lead had not been materially decreased.

The result of the race was a practical triumph for every one of the six cars which finished. Never in the history of track racing had such conditions been encountered. Indeed, shortly after daybreak some of the contestants appealed to Referee Johnson and the other officials to call the race off and finish it some other day, meanwhile impounding the cars under guard. But after a hurried council of war the Quakers decided that a 24-hour race could not be run in two sections and the harried and exhausted crews were hurried on.

With each succeeding minute the conditions grew worse. Despite chain grips, all the cars skidded badly on the turns, even at the twenty-mile gait, which most of them found all too speedy. Each attempt to "hit it up" caused the cars to skid like a boy's



KNEPPER AND FRAYER-MILLER THAT FINISHED SECOND.

BALL BEARINGS FOR AUTOMOBILE CONSTRUCTION*

By HENRY HESS.

IN the automobile, as in all other mechanisms, the journals deal with loads having various directions. In the order of their occurrence and importance they are:

Radial loads—acting at right angles to the shaft axis;

Thrust loads—acting parallel to the shaft axis;

Angular loads—these may always be resolved into, or considered as made up of radial and thrust components.

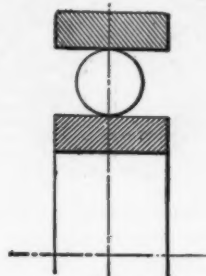


FIG. 1.

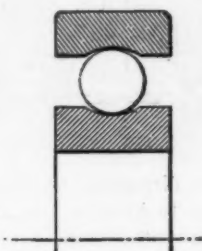


FIG. 2.

Other things being equal, it is always best to arrange sustaining surfaces at right angles to the load direction. That gives the design of Fig. 1. Better carrying capacity is had from the modification in Fig. 2, in which races of curved cross-section are substituted for the straight line ones of Fig. 1. These grooved races have the advantage of greater sustaining capacity, as referred to more in detail elsewhere; as the tangent to the curve is normal to the direction of the radial load, the bearing is of the radial type. As is shown elsewhere, the sustaining capacity of the bearing is dependent on the degree of curvature of the race cross-section, being greater as the latter more nearly approaches equality with the ball curvature.

Cutting a local groove from the side into a race for the purpose of assembling the balls between the two races is general (see Fig. 3), but is not good practice. If such cut is confined to one race



FIG. 3.

which is then so held in the mountings as always to keep the opening at the unloaded side of the journal, this is at least defensible practice. The carrying capacity is then not decreased, as the load is carried by cross-sections of maximum sustaining ability. Unfortunately, this demands

the use of two differing designs; the one with the cut in the outer race, the other with that placed in the inner race, according as the shaft or the housing rotates; the first case is the usual one of an ordinary journal; the second is found in wheel-hubs, etc. That occasional arrangement in which both hub and shaft rotate cannot be taken care of by this design.

It may be said here that high loads are dealt with. So long as the loads are low enough to be within the sustaining capacity of the straight line cross-section, such local straight section at the filling opening is of no moment. At high speeds this does not hold true, since then the catching of the balls at the junction of the filling, opening with the race, results in damage to the balls and, through these, to the race surfaces. With the cut in both races the carrying capacity is reduced to that of the straight line section at the side of the cut, since one or the other must come under the load in each revolution.

The requirement that the sustaining surfaces should be at right angles to the direction of the load is responded to by the collar type of Fig. 4. What has just been said of the cross-sectional

shape of the race surfaces in their relation to carrying capacity in radial bearings applies here also to the thrusts. Since the two races and the ball series do not form a unit handling as one piece, the need of a filling opening for the balls from the side does not arise. These bearings are frequently made with the surfaces *A* and *B* parallel. Provided such parallelism is secured, the design is good. Practically it is not realizable, since also similar parallelism between the collar of the shaft and the seat of the housing, though possible of initial attainment, cannot be maintained under the slight deflections due to the load. It must be borne in mind that initial errors in workmanship or deflections of a thousandth of an inch will cause the balls at one side to carry the entire load. For a given case this demands a bearing of needless size. By seating the one plate on a spherical surface, as *B*, this plate adjusts itself in such wise as to distribute the load over the entire number of balls. Speed very decidedly enters into the carrying capacity of this type of bearings as a factor; so much so, in fact, as to greatly reduce its utility for speeds above 1,500 revolutions per minute.

Angular Load Bearings.

Of these there are shapes and modifications innumerable. Figs. 5, 6, 7 and 8 may be taken as typical and representing two, three and four-point contacts. In order to secure rolling, the contact points of balls and races should form points of a cone of rotation, whose apex lies in the center line of the shaft, or they may form points on the surface of an imaginary cylindrical roller that is parallel to the shaft. The defect in all of these forms is their adjustable feature. This places them absolutely at the mercy of every one capable of wielding a wrench; a bearing that has been properly proportioned with reference to a certain load, will be enormously overloaded by a little extra effort applied to the wrench. Or the bearing may be adjusted with too much slack with consequent rattle and early demise. The prevalent idea that these bearings may be adjusted to compensate for wear is erroneous. Wear will form a groove on the loaded side of the race deepest at the point of maximum load, about as in Fig. 9.

It is obvious that adjusting the cone endwise will only cause the balls to be more tightly pinched between the sound portions of the races, probably with sufficient pressure to overload; that will then cause an early flaking out, as shown at *A* in Fig. 10. These rough surfaces will quickly attack the balls and, progressively, the entire race.

The annular non-adjustable type of bearing will always, other things being equal, perforce have the important advantage of immunity from overload by maladjustment, no means for adjustment

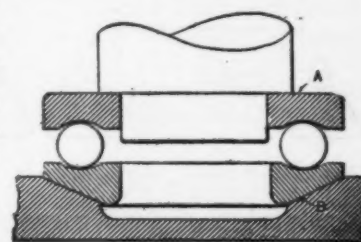


FIG. 4.

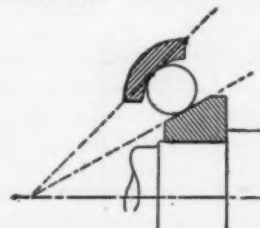


FIG. 5.

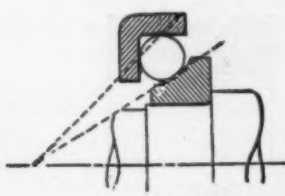


FIG. 6.

being provided. Theoretically it would seem that the radial bearing would be incapable of carrying thrust load, owing to the wedging of the balls between the races. Fig. 11 shows the condition with the balls absolutely filling the space between the races. Fig. 12 shows the ball not quite filling this space. Fig. 13 shows the

* Extract from paper read at the Indianapolis, Ind., meeting of the American Society of Mechanical Engineers. Continued from page 1029, issue of June 27.

condition of Fig. 12 under the influence of a thrust load. The ball does not come in contact with the race grooves where these are deepest, but on one side, so that the tangent to the race curvature at the contact point forms an angle with the line of thrust. For

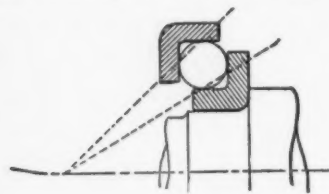


FIG. 7.

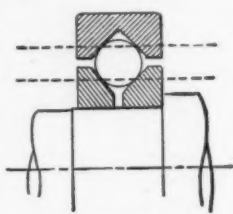


FIG. 8.

Fig. 11 this angle would be infinitely small and the wedging action considerable. A calculation of the amount of the wedging action for Figs. 12 and 13 with the radial freedom permissible in the bearings still indicates an inadvisably large amount of wedging. But actual running tests as well as a large fund of accumulated

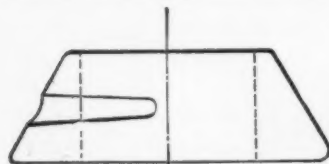


FIG. 9.

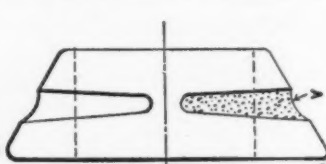


FIG. 10.

experience have absolutely proven that these bearings will carry much more thrust load than the calculation of the theoretical wedge angle indicates as possible. It is probable that the deformation which we know occurs at the point of ball contact and that results in small actual surface areas of contact instead of mere

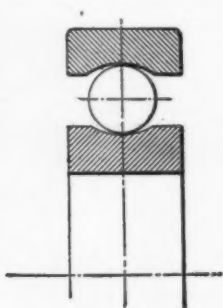


FIG. 11.

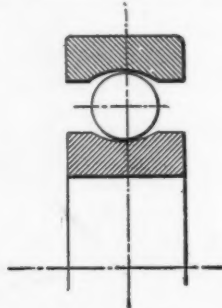


FIG. 12.

points, has a mean tangent to such compression surface of greater inclination and that the wedge is therefore more blunt.

It has been experimentally determined that the thrust carrying capacity of the uninterrupted type of an annular bearing is to the radial capacity as 1-10 to 1-4 to 1, depending upon the relation of

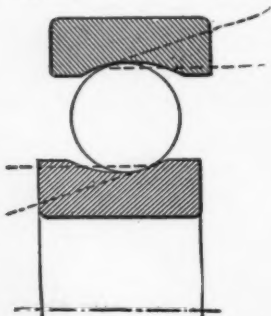


FIG. 13.

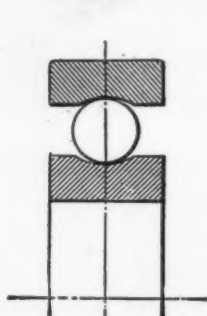


FIG. 14.

ball diameter, race curvature, and number of balls. It has also been experimentally found and confirmed by experience that speed has very slight influence on this thrust carrying capacity; for speeds above 1,500 revolutions per minute these radial bearings of the uninterrupted race type are more efficient thrust carriers than the collar type.

This is characteristic, however, only of the uninterrupted radial type. Those forms in which the balls are filled in through an opening in the side, Fig. 14, may manifestly not be subject to end thrust, as that would cause the forcing of the balls into the interruption and their destructive pinching.

It is held by many designers of ball and roller bearings and others as well—that in such bearings adjacent balls or rollers are pressed against one another with considerable force. With the inner race of Fig. 15 rotating as indicated, the balls or rollers will also roll as indicated. The surfaces of the balls or rollers roll in

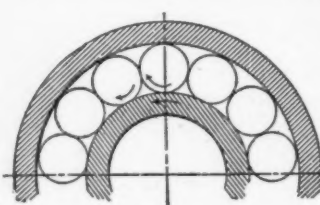


FIG. 15.

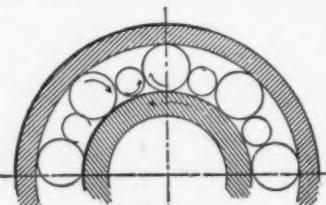


FIG. 16.

opposite directions, and therefore with sliding friction. This is assumed to be a serious defect by those who reason that these surfaces contact under pressure. The same general cure in forms innumerable has served to glut the records of our and various other patent offices. This cure, see Fig. 16, consists in the provision of smaller balls or rollers interposed between the larger ones, so that all contacting surfaces roll relatively to one another. This remedy is, however, fallacious in that it brings about the very condition it seeks to avoid. If two large balls, Fig. 17, compress a smaller one between them, and the three have their centers connected by a straight line, they will retain their relative positions.



FIG. 17.



FIG. 18.

If, however, the interposed roller or ball, Fig. 18, has its center to one side, then this roller or ball will be forced outward. The resort to a cage for retaining the interposed roller or ball, results in the latter being pressed against the sides of the cage and in the forcible sliding contact that it was intended to avoid.

In another design, Fig. 19, the interposed member is brought into contact with the race. Following out the directions of rotation shows that the various rollers or balls are in rolling contact, but that the interposed member has the wrong direction with reference to the race against which it is forced. These designs are all based on a failure to recognize an axiom in mechanics, according to which a force whose direction is normal to the supporting surface has no component in any other direction.

If a loaded plank, Fig. 20, is carried on two rollers, and plank and ground are parallel, the rollers will neither approach to nor recede from one another. If the plank is not parallel to the ground, but bent down between the rollers, Fig. 21, the rollers will be forced apart. If the plank were oppositely curved upward, the rollers would be forced toward one another.

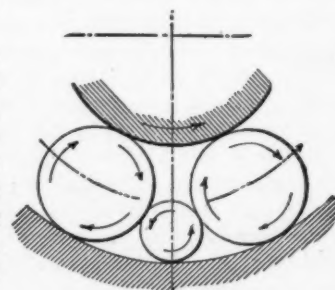


FIG. 19.

As parallelism is concentricity with an infinite radius of curvature, the parallel plank and ground may be regarded as elements of a roller bearing of infinite diameter. A mere change in diameter, while retaining the concentricity of the two races, does not alter the conditions, from which it follows that the load carried by a ball or roller does not press the balls or rollers against one another.

This may be considered in another way. With the shaft of Fig. 22 loading the inner race the latter is (fallaciously) assumed to act as a wedge, forcing the balls at the bottom apart and consequently producing pressure between the balls at the top. In that case the space d must be rather smaller than a ball diameter d . The rotation of the inner race carries the balls around the bearing; the diameter d is therefore forced through the smaller space b . To do this the ball must lift the inner race. The force to do this is imparted by the load, and is equal to the rolling friction and

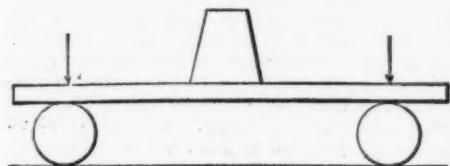


FIG. 20.

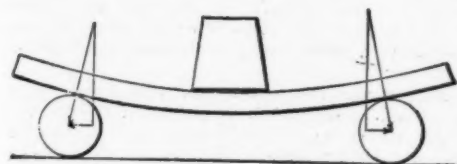


FIG. 21.

can therefore amount to but a fraction of that load. We would then have the absurd condition of this smaller force overcoming the larger original force. Were we to assume that the inner race is not raised by the ball in passing, but that the ball compresses sufficiently to get through, it would mean that the absurdity of the small force represented by the rolling friction was sufficient so to deform the ball or roller.

If a vertically loaded bearing which is not quite filled, as Fig. 23, be rotated slowly enough for observation it will be found that the balls are separated near the top and slightly forward of the vertical in the direction of rotation, and that the balls, under the influence of their weight, drop through this gap with a slight click; this click is familiar enough to those who have not yet entirely forgotten the days when their noses cultivated the intimate acquaintance of their bicycle handlebars. It is this click which is

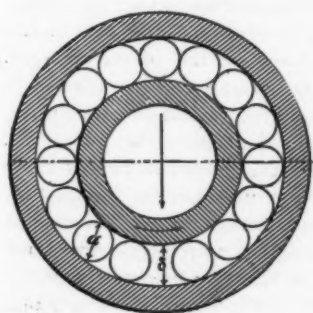


FIG. 22.

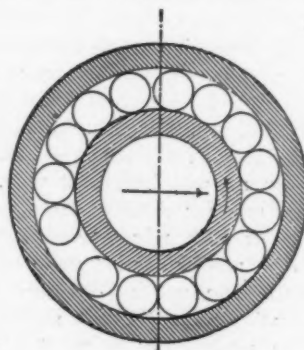


FIG. 23.

responsible for the high note of the high speed ball bearing of that type in which the races are filled with balls. I may seem to have dwelt unnecessarily long on this fallacy of ball and roller bearing design; its surprising prevalence must be my excuse.

NOVEL ELECTROMOBILE BAGGAGE TRUCK.

To facilitate the work of removing heavy loads of baggage and mail sacks from through trains at stations where short stops are made, as well as to lighten the labor of the baggage handlers, one of the railroads has adopted a number of electrically-driven baggage trucks. The outward appearance of the latter is the same as that of the standard truck and it is somewhat startling to see one man apparently hauling a ten-foot stack of trunks as if it were a child's wagon he were dragging. Closer inspection reveals the secret, as what appears to be a drag rod is used only for steering and turning the current on and off, for which purpose it carries a ring on the end. These trucks have been in operation for several months.

FOR DETERMINING TIRE TEMPERATURES.

It is a matter of common knowledge that as the result of friction both with the road surface and that produced by the relative movement of the inner tube and shoe of the tire, the latter reaches a high temperature when the car is run at great speeds, but up to the present little or no attention appears to have been paid to the matter of investigating this phenomenon. Observation has shown that the tires of a racing car reach a temperature that cannot be borne by the hand placed on the outside of the shoe, which would appear to indicate that the temperature of the interior of the tire might at times approach perilously near to the melting point of the rubber itself. In fact, some autoists have accepted this theory as being responsible for the partial dissolution of the inner tube generally termed "blowouts," but experience proves this to be erroneous, many of such injuries being nothing more or less than the result of carelessness in replacing the tube in the shoe, as a consequence of which a portion of it becomes pinched between the beads.

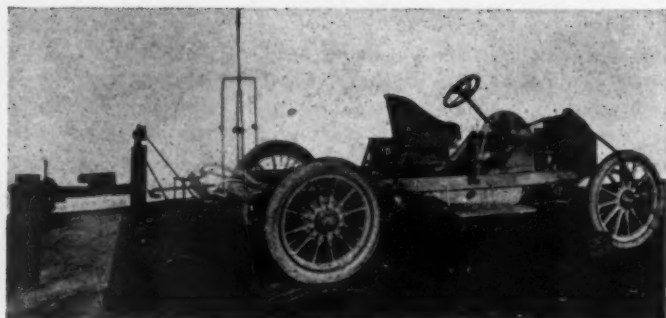
It is, in consequence, of interest to learn that a French autoist—Lucien Périssé, secretary to the Technical Commission of the Automobile Club of France—has devised a means of investigating tire temperatures somewhat more closely than the present method of feeling the exterior with the hand. Writing of his experiments in the *Bulletin Officiel de la Commission Technique*, he says:

"I have combined this device by means of utilizing a Scavengerland pressure indicator and a thermometer, with the aid of M. Morin, the maker of the former useful instrument. The pressure gage consists of a needle operated by an exterior button passing through an air-tight joint and so placed as to operate the stem of the valve, while the instrument itself is designed to be screwed on the shell of the latter in place of the cap.

"But in order to avoid the necessity of removing the instrument when it is found that the pressure of the tire is insufficient, a side outlet has been provided on the stem of the pressure indicator. Ordinarily this is closed by a regulation style cap, which may be removed whenever further inflation is necessary. It is to this opening that I have applied my temperature-determining apparatus, which consists of a chamber communicating with the atmosphere through the medium of a pet-cock. In the center of the chamber in question there is placed the bulb of a thermometer graduated to 120 degrees Centigrade. The thermometer is held fast in place by a packed joint and protected from injury by a casing.

In order to ascertain the temperature of the interior of a tire immediately after the conclusion of a race, or after having been run at high speed for any length of time, it is only necessary to remove the valve cup of the tire and substitute in its place the pressure gauge, press the button in order to permit the hot air from the interior of the tire to escape into the chamber containing the thermometer, and a double reading may be taken—that of pressure of the expanded air and its temperature. In order that the latter may more closely approximate the exact temperature of the interior of the tire, it is necessary to open the pet-cock slightly, thus allowing the air to escape slowly. Otherwise the metal of the gage and of the containing chamber would be apt to rob the small amount of air necessary to fill the chamber but once of such a large proportion of its heat as to render the reading worthless. After the air has been escaping through the pet-cock for half a minute or so, the entire apparatus reaches a uniform temperature and the reading practically represents the condition of the interior of the tire. Experiments with the device should reveal some interesting facts in this connection, as little or nothing is definitely known on the subject of tire temperatures apart from the fact that is a matter of common knowledge they do get most uncomfortably hot when run very fast—a condition that is not conducive to longevity.

*Translation from the *Bulletin Officiel de la Commission Technique de l'Automobile Club de France* by Charles B. Hayward.



CHASSIS-TESTING PLANT OF AMERICAN LOCOMOTIVE WORKS.

THE BERLIET CHASSIS-TESTING PLANT.

In addition to being constantly on the alert to devise new methods of construction as well as to obtain the very best materials procurable, the automobile manufacturer had found it incumbent upon him to subject his product to more and more strenuous tests before turning the cars over to the purchaser. The practice of running-in the motor while driving it by external power in a flood of lubricating oil, and that of giving it a thorough test on the stand under its own power and with its own accessories, is quite usual, as is also that of thoroughly testing the complete chassis out on the road. A final step in these numerous testing processes has been introduced by some of the factories, among them the American Locomotive Works, of Providence, R. I., the builders of the Berliet. The accompanying illustration pictures the new chassis-testing plant of this firm, so that not alone the motor, but the efficiency of the transmission as a whole may be tested and its operation followed under the equivalent of actual operating conditions. The power is absorbed by a hydraulic brake similar to that used in the motor-testing plant, and is measured by a Giddings recording dynamometer, registering the horizontal pull in pounds, while the peripheral velocity of the driving wheels is indicated by a tachometer, giving the feet per minute factor for the horsepower calculations.

The driving wheels of the car rest upon two wrought steel drums approximately seven feet in diameter by sixteen inches face, the latter being coated with a material producing a coefficient of friction between the tires and the wheels, which is equivalent to that of dry macadam. These drums are carried on pillow blocks set in a pit, one end of their supporting shaft also carrying a two-speed sliding gear to which the hydraulic brake is attached. The latter is of the same type as that described in THE AUTOMOBILE recently in connection with the brake tests of the Berliet motors. Every American Berliet chassis after finishing its road test is placed on this dynamometer and put through a series of tests on the different gears and at speeds varying from the minimum to the maximum of which the car is capable.

SEEKING GASOLINE SUBSTITUTE IN ENGLAND.

Consul Albert Halstead, of Birmingham, England, reports as follows on the efforts now being made in the United Kingdom to find a substitute for petrol (gasoline) as motor fuel:

The advance in the price of petrol, due to the more general use of motors for pleasure and commercial purposes, and the certainty of an increasing demand because of the immense development of the motor industry, leads to efforts to find a suitable substitute for this fuel. Then there is apprehension that petrol may be raised more in price than is legitimately justified by its greater use, because motorists are so dependent upon it. As possible alternatives or substitutes, crude petroleum, paraffin (kerosene), shale oil, benzol, alcohol, and acetylene are mentioned in "Motor Traction." Some of these, though unsuitable for use alone, are said to give better results when combined with another hydrocarbon. Crude petroleum is regarded as unsatisfactory because of its heaviness, except in specially designed engines, such as are not now generally in use. Paraffin, though efficient and powerful, is held to be objectionable because of the difficulty of starting up an engine from the cold, and because the oil has a tendency to creep over the motor and injure its contents. It appears, however, that

the use of a small amount of petrol makes paraffin more adaptable, but this can be advanced in price as easily as petrol if it should come into use as a motor fuel. Shale oil is obtained from a bituminous shale found in the coal of the Midlothian district. Though it is said to have good results, the supply is comparatively small. Acetylene has been used successfully when combined with paraffin or with alcohol, and when water is injected into the cylinder of the engine during the firing stroke. It is feared it will be found too costly under present conditions of manufacture, but it is argued that a tendency to use acetylene might easily result in reducing the cost of manufacture; used by itself it is thought to be likely to strain and damage a motor engine, through the great force of its explosion.

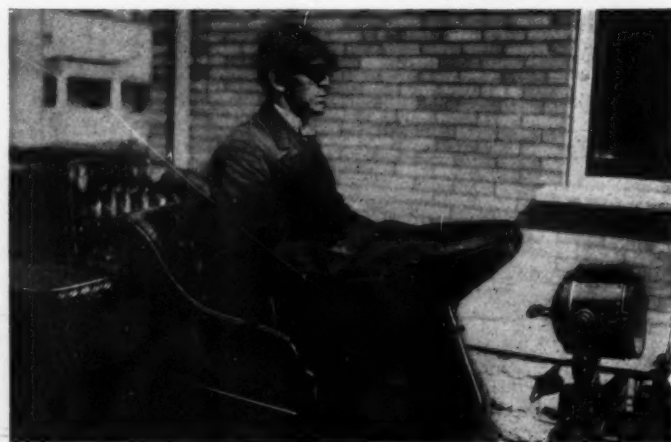
Alcohol and acetylene have been combined experimentally for motor-fuel purposes with some degree of success, but the difficulty is in ascertaining what should be the relative proportions of the two ingredients. This combination cannot, it is felt, become commercially useful in the United Kingdom for motor purposes until alcohol can be produced much more cheaply. The high inland revenue tax now keeps up the price of alcohol, though it can be produced very cheaply from many substances of little value. If alcohol alone were used for internal combustion engines, the design of such engines, it is said, would have to be changed to insure complete combustion. The difficulty in starting an engine from alcohol because of the cold can, it is asserted, be overcome by using either a vaporizer or a burner or a small quantity of petrol in the initial stages.

Benzol is regarded as perhaps the alternative fuel most likely to aid in the solution of the question. It is produced during the distillation of coal at gas works, and it is thought that it can be manufactured in sufficient quantities and sold at a fair price if the demand arises for it. It is more powerful than gasoline, and experiments made with it are said to have been most encouraging, although the small percentage of sulphuric acid it contains gives rather an unpleasant odor to the exhaust.

With the amount of investigation that is now being made on the subject of a substitute for gasoline, which is constantly increasing in price, it would seem as if considerable knowledge of value to the automobilist should be forthcoming.

SOMETHING NOVEL IN THE LINE OF PROTECTORS.

Whether the inventor of the Mandeville steering wheel Auto-Muff would have won the prize offered by an enthusiastic French autoist for a device of this kind a few years ago cannot be said, but it is only necessary to note the simplicity of the device as pictured by the accompanying photograph to see that it has merit and is well designed to accomplish the object in view. Perfect protection is afforded both the arms as well as the hands, and at the same time the control or ease of handling the wheel is in no way interfered with. Two different styles are made, the one for summer consisting of a lightweight rubber cloth that is both rain and windproof and which is so compact as to be readily carried under the seat, while the winter style is leather-covered and fur-lined, making an extremely warm combination when the best gloves made are none too much protection against the biting cold which bothers the driver's hands more than anything else.



MANDEVILLE AUTO-MUFF FOR COVERING STEERING WHEEL.

ON THE LIGHTER SIDE OF TECHNICAL MATTERS

By CHARLES B. HAYWARD.

IT is quite safe to say that nothing has done so much to educate the man in the street on mechanical matters to anything like the extent for which the automobile is responsible. Further, it has done more to arouse an enthusiastic interest and a desire for information on technical matters on the part of the average layman than have the combined inventive results of a quarter century of the most marvelous progress the world has ever seen. Naturally enough a thorough knowledge of any piece of mechanism, or of its underlying principles, is not to be gained by scraping a bowing acquaintance with it; such lore as may be accumulated in this manner must necessarily be purely superficial even though it does permit its possessor to talk learnedly of what a newspaper man has aptly characterized as "that bunch of go-dinkusses and duffickers called an automobile." In the acquisition of this store of knowledge on the part of thousands who truly did not know enough to distinguish their right hand from the left when it came to things mechanical, it was inevitable that many highly amusing situations should be brought about, and it is the object in the present instance to review a few of them. To the wise ones, they are one and all mildewed chestnuts, but unfortunately the category referred to is not an extensive one, so that both the country at large and the automobile industry is safe for some time to come.

The Old, Old Tale of the Missing Cylinder.

Probably the man who invented the missing cylinder story was responsible for the advent of an epidemic of similar crimes, but however that may be, the idea was a clever adaptation of a quasi-technical term—a bit of the current automobile vernacular in brief, to an existing situation, the recital of which has been responsible for many a smile. It was originally told—if the actual origin or the natal form of such circulatory whisks can ever be really traced—regarding an old lady who was out driving in the park alone with her chauffeur. The latter brought the car to a stop several times by the roadside and tinkered with something under the bonnet, while the old lady maintained a posture of dignified serenity in the tonneau, one of those lady-with-the-parasol-in-the-brougham attitudes, utterly oblivious of the interested group that watched John try to fuss about and keep his livery immaculate at the same time. After two or three such halts, womanly curiosity got the better of mi-lady and she inquired. "John, what can the matter be? Why are you stopping so often to look at things?"

"A couple of the cylinders is missin', ma'am, and she don't pull well," replied the puzzled ex-jehu.

"Well, are you quite sure you did not leave them behind in the garage, John?"

This naturally precipitated a host of "missing" stories based on the same fundamental idea, though probably the cleverest modification was the work of a Chicago scribe, who twined his recital about a "Cholly" boy who had a plethoric bank account and "nothing on his mind but his hair." All attempts to sell him an automobile had hitherto proved futile, his chief amusement consisting of chair-warming in one of the windows of his club. A mutual friend finally introduced a Chicago dealer, who managed to land an order for a high-priced car with all the "trimmings" he could possibly think of to bring up the amount of the bill. The new owner engaged a high-priced chauffeur and invited his friends for a trial run. Not many miles out of the city there were signs of trouble, and the chauffeur began to tinker about the motor to the host's great surprise.

"Now, what on earth is the matter?" he inquired peevishly.

"The motor's missing, sir," replied the hired man in the uniform.

"Just as I expected," retorted his employer for the benefit

of his guests. "Even your friends do you. I trusted that man to get me the best machine on the market and to see that I got everything that ought to go with it, and now there's something missing. I'm going back to the city to get that motor if it costs me ten dollars for a cab."

Would-be wise owners are also responsible for many of these "breaks," not a few of which are highly diverting, to say the least. For instance, a quite newly fledged owner, who was riding beside his driver while treating some friends to a spin, took occasion to ask his hired man some questions in order to display his knowledge.

"Why doesn't she pick up better on hills?" he inquired, as the motor slowed down and began to labor, due to the fact that the driver was trying to take a rise on the high gear that was too much for the car.

"She's losing compression," was the reply.

"That's so," remarked his employer in a relieved tone of voice, "I thought I heard something dropping back there," and he looked anxiously back along the road to spot the lost compression lying on the dusty highway.

Those Who Like to See the Wheels Go Round.

The man who is never satisfied with any piece of machinery that comes into his possession until he has taken it to pieces to investigate its interior, usually finding himself in a predicament when it comes to reassembling it, is also responsible for not a few of the gems that go to make up the shining array. One, for instance, and a minister at that, bought a motorcycle, and after he had had his first ride on it—it may have been before, for that matter—started to dismantle it and distribute its various component parts round about the adjacent scenery, so that by no possibility could he find them handily when it came to putting the machine together again. He got the cylinder off and took the piston out, and then and there he made a most wonderful discovery. Every one of the piston rings was broken! He immediately took to pen and ink and wrote the manufacturer of the machine a sermon on the evils of trying to deceive innocent purchasers such as himself by sending out a machine in such a condition. He would please forward a new set of unbroken rings immediately or the motorcycle would be returned at his expense and he would be sued for the money.

Another equally good one that concerns the owner of a motorcycle relates to the oft-used theme of compression. He had had his machine for some time and it had given good service until recently when it failed to develop its customary power, would not climb hills formerly made light of and more to the same effect. The owner was the only motorcyclist for a good many miles round, and his only haven in case of need was a bicycle repairer, whose knowledge of such things probably did not greatly exceed the legitimate allowance, though he correctly diagnosed the case by informing his inquirer that what was needed was "more compression." Whereupon the motorcyclist, quite satisfied at having learned the trouble, was at pains to sit down and write to the maker requesting that he kindly forward him a "package of compression by express" as the machine was quite useless without it.

This was equaled, if not exceeded, by the plaint of the buyer of a new car who found it impossible to make the motor go, close following of the maker's instruction on every point to the contrary notwithstanding. He then set out to make an investigation on his own hook and was quite satisfied that he had found the root of the trouble when, on dismantling the muffler, he discovered a peculiarity of its internal construction with which he was evidently not very familiar. The usual irate letter to the manufacturer telling him how little he knew about automobiles

in general and how very little he knew about the particular one that he had sold or rather palmed off fraudulently to the writer of the letter. "How on earth can you expect me to make your old machine go," he concluded, "when the pot on the end of the pipe that comes from the motor is as full of holes as a sieve?"

Newspaper Men Among the Worst Offenders.

But, after all, the tyro and the beginner are not the only ones who fall by the wayside when it comes to realizing the limitations of their own knowledge where the technical side of automobiling is concerned and who fail to go slow until sure of their ground. The foregoing are naturally but a few of the very many stories of this kind that could be told—new ones are coming to light every day, though the old ones seldom fail to bring a laugh. In fact, it would require a small volume to do justice to the number of these tales now current and many of which are destined to live for years to come, if not as long as the automobile lasts, through the unending repetition that is given them wherever autoists congregate. Many of the stories told of the landlubber and the greenhorn on a yacht are the same to-day as they were a century ago, so it is reasonable to believe that a few of the automobile classics will suffer the same fate.

I presume an apology should really be in order before dragging the following to the light again, as within the inner circle an attempt to tell it is usually heralded with groans and it is universally regarded as one of the many that will simply not down. But then the inner circle is a very small thing, indeed, and there are doubtless far more autoists who have never heard it than the reverse—probably a hundred to one would be a good proportion. It seems that an elderly woman had met with a most peculiar accident in which an automobile was the chief aggressor. In short, she had simply been run into and knocked down at one of New York City's bad traffic spots—the corner of Forty-second street and Broadway. She was not killed, nor in fact very badly injured, despite the fact that both her age and the speed of the car in striking her were certainly not in her favor. Had there been no other circumstances connected with the accident, it might have passed almost unnoticed as but one of the many that appear to be inevitable, whatever the nature of the vehicle, under such crowded traffic conditions and careless humanity in getting in the way of moving objects. But the car caused the woman to measure her length directly in front of it and then passed over her without the wheels touching her; after it passed her clothing was found to be in a brisk blaze. There must have been an automobile "stringer" on the spot and he took two of the scribes representing leading New York dailies in tow and told them all about how it happened. As a result there was a front-page story in two of the next day's morning papers to the effect that a woman had been run down by an automobile and her clothing had caught fire from "a hot coal which dropped from the carbureter." A handy policeman extinguished the flames promptly, but it never developed that he found any hot coals or any ashes to explain the cause of the fire. The motor must have been running on a very rich mixture or with the spark very much retarded, with the result that the charge was still burning as it issued from the muffler, so that it was the exhaust which set fire to the woman's clothing as the car passed over her.

Then there was the two-column Saturday evening automobile story, which one New York daily makes a specialty of, that quoted Joe Tracy at great length on the peculiarities of the internal combustion motor, after reading which most of his friends thought the honorable Joseph, of racing fame, must have either been out the night before or had got his theories mixed. Of course the inner circle was wise; "green reporter" explained things, but a reference to the fact "that the carbureter pushes the piston up and down in the cylinder on which account the stroke cannot be lengthened," or something equally accurate, will still cause Tracy to smile audibly and look distinctly weary.

It would seem as if the fraternity must have missed an ex-

cellent opportunity to perpetuate a good show-time story by not patterning after Mark Twain's amused query at the end of a lengthy and much involved explanation of the working of the automobile, from beginning to end. The well-known humorist had requested to be inculcated into the mystery of transforming gasoline into speed and the demonstrator had been at pains to describe every step in the operation down to the last detail, including the characteristics of each part of the mechanism in its function of transmitting the power.

"But what makes the car go?" asked the writer, in a most puzzled tone of voice at the end of the long explanation.

But getting into the realm of the demonstrator's and salesmen's stories opens up too broad a trail to pursue much further, as the number of these that can be told is only limited by the memory of the teller. Their name is legion and a booklet filled with them would make interesting reading. To cite but a single instance, there may be recalled the "spiel" of the new salesman who reduced the explanation of the motor's working to the vernacular. "You see," he said to the seeker after information, "a lump of gas is sucked into the inside right here, the piston comes up and hits it a whack, the spark jumps in and there you are," he concluded, with a flourish that could not be equaled by the solver of the most involved problem with his final *Q. E. D.*

HOW TO SELL AUTOS IN BRAZIL.

Consul-General George E. Anderson, of Rio de Janeiro, sends further particulars concerning autoing and automobiles in Brazil. He says that French machines are most admired, and that the Brazilian coffee producer has the conviction that the French automobile is the only one on the market worth considering. The Consul-General adds:

"Practically all of the French machines are represented by up-to-date agents in the field and the men in the garages understand French machines better because they work with them more, and, perhaps, because of other reasons. To get a Brazilian interested in an American car is difficult, but it is done nevertheless, and after he is once interested and after he investigates there is a chance of selling him an American machine, provided that at the same time he is willing to do business as the American company says he must—meet its terms, subscribe to its specifications, bear with more or less careless manner of shipment on slow steamers, and in other ways and manners depart from the accustomed methods of doing business in Brazil. One must appreciate the hold of French and other European motor cars upon the Brazilian market.

"The Brazilian motor buyers just now want as large, fast, and reliable a car as they can get for city use, one that will seat as many people as possible. A superabundance of power is a defect generally, and is a requisite in the case of only a few cars whose owners make a specialty of scaling a mountain range. Brazilian motorists are inclined to low, rakish, European machines. They like plenty of brass and showy accessories, and when they buy they want time. The dealer wants time to sell the machine and the buyer wants time to pay for it. The dealer is willing to pay interest from date of invoice, and will furnish good reference.

"I know of only two traveling representatives of American motor-car makers here now. Both are doing well. It is unfortunate that many American manufacturers seem to think they can do business with Brazil at long distance. With a traveling agent, a local agent follows as a matter of course. There seem to be plenty of Brazilian business men ready to make contracts for the sale of American autos when once an agent places the matter before them fairly. To properly push American machines there must not only be American agents to sell them, but local men to look after them when sold. The lack of good mechanics for repair work is felt by all makers. It is felt especially by American representatives, since with the great number of European machines here the latter are better cared for.

"Motor men who have been here representing American concerns have seemed to be very well pleased with what they have done. Their chief business has been done in Rio de Janeiro and Sao Paulo. They have come down the coast from Pernambuco, and most of them leave for Buenos Aires or Montevideo from Santos. This has been a mistake on the part of some of them, inasmuch as some of the best, if not almost the only good roads in Brazil are in Rio Grande do Sul, and the government of that State has been granting concessions to syndicates to place lines of automobiles in service between certain cities not served by railroads."

LETTERS INTERESTING AND INSTRUCTIVE

Using Non-Vibrator Coils with Two-Cycle Engine.

Editor THE AUTOMOBILE:

[801.]—Being a constant reader of your valuable magazine, I want to inquire if the non-vibrator jump-spark coil can be successfully used on a two-cycle engine, two-cylinder, or will I have to use an independent vibrator, and will one of these do for two coils?

I think this will be of interest to others, and I would like to hear from some that have tried this method; in case I use the independent vibrator, what size wire should I wind the small magnet with and how many turns, also give diagram of the wiring. Any information you can give me on this subject will be very much appreciated.

Could I also use a two-cycle vertical engine in an automobile by laying it down flat with the spark plugs toward the dash? In case I use the engine this way, would the splash system oiling work as well as when run vertical?

West Liberty, Iowa.

FLORENCE.

There is nothing to prevent the use of a non-vibrating jump spark coil on a two-cylinder two-cycle engine, nor, for that matter, on any type of automobile engine. Coils of this kind were long a feature of some well-known makes of French cars and are still employed on motorcycles to a very large extent, particularly in this country. So far as their electrical operation is concerned, this has been found to be superior to that of the usual type with a trembler or vibrator, as they are much quicker and surer in action, approximating the service given by a magneto in this respect, but mechanical difficulties connected with their use have been such as to render them impractical, so that except in connection with a magneto the non-vibrating coil is practically obsolete on the automobile. The reason lies in the fact that a quick, sharp break of the primary circuit is essential, and it has not been found possible to construct a contact breaker that will accomplish this and still be sufficiently durable in constant service for practical purposes.

You will not need an independent vibrator and particularly not an electric one, in order to use a non-vibrator coil with your engine. A mechanical contact breaker that will meet the above mentioned requirements is all that is necessary. The scheme of using a separate electrical vibrator in order to operate the coil is entirely impractical on the car, chiefly due, not alone to the complication of the apparatus involved, but also to the largely increased current consumption. If you have an opportunity to inspect an old De Dion motor in your vicinity, you may see the type of contact breaker used with a non-vibrator coil, unless the motor you find has been rebuilt in this respect. If you still wish to try an electrical independent vibrator, the cheapest and easiest way to improvise one would be to take an electric bell, which can be purchased as low as twenty-five or thirty cents, and simply remove the bell and hammer. This will give you a vibrator designed to run on battery current and one much better made than the average amateur could turn out. The wiring is so simple that a diagram is unnecessary to understand it. Connect one battery wire to one terminal of the primary, or heavy winding, of the jump spark coil; lead the other battery wire to one terminal of the bell winding and connect the other bell binding post to the second terminal of the primary coil winding. The secondary connections are the same as ordinarily used, direct from each coil to the plug, where there is a coil for each cylinder, or to the distributor and thence to the plugs, where but a single coil is used, this usually being the case with a non-vibrating-coil.

There is no reason why you cannot place a two-cylinder two-cycle engine, ordinarily designed to be used in a vertical position, in a horizontal position in your proposed car. The splash system of lubrication has been found to give perfect satisfaction with horizontal automobile engines, though some modifications might be necessary to adapt the motor you have to this purpose, as it was not originally designed therefor and trouble might otherwise be experienced with its use in the new position.

Advisability of Installing an Auxiliary Exhaust.

Editor THE AUTOMOBILE:

[802.]—I am a constant reader of "Letters Interesting and Instructive," and have noticed several articles about the auxiliary exhaust as being a great improvement applied to certain motors. We have a four-cylinder, four-cycle 4x4 air-cooled motor, which will overheat if used on low speed very much. I have thought of putting on auxiliary exhausts. The builder of the motor advised us not to do so, saying that the cylinders would be apt to get out of round, etc. My idea is to make 1/4-inch round holes in the cylinders near the bottom (to commence to open 40 degrees before the end of the stroke), then pipe from these holes to the main exhaust pipe (1 1/4), not using any valves. The regular intake and exhaust valves are operated by push rods. Of course two ports would always open together.

I would like your opinion on such an arrangement.

Moline, Mich.

SUBSCRIBER.

We concur in the opinion of the builder of the motor in not recommending the installation of an auxiliary exhaust, but not for the same reason. There is very little to be feared from the cylinder becoming out of round or other similar damage occurring to it, if the work is properly done, but we think it is very doubtful if the result will be an improvement that is worth the trouble involved in making it. Instances have come to our knowledge where old single-cylinder motors as used on motorcycles have been improved considerably by the use of an improvised form of auxiliary exhaust such as you mention, but they can hardly be said to form a precedent for the same thing in connection with a four-cylinder engine. While we cannot lay claim to having had any personal experience with such an engine, we have always understood that the makers of the Franklin car, who are the exclusive builders of an air-cooled motor with an auxiliary exhaust, did not find the latter entirely satisfactory until valves were introduced in connection with it. Though termed an *auxiliary* exhaust, as used on the motor in question this would appear to really constitute the exhaust proper, while the ordinary exhaust valves are utilized to permit the escape of the remaining hot gases swept out by the piston on what is virtually a scavenging stroke and which is one of the chief contributing elements to the wonderful efficiency of these motors.

An Australian Favors American Two-Cycle Cars.

Editor THE AUTOMOBILE:

[803.]—Enclosed please find P. O. money order for 18s. 9d. in payment of my subscription to "The Automobile" to December 31, 1908. My present subscription runs out on June 27 this year, and so as to make it expire at the end of the year I am sending you a renewal for a year and a half. As I keep my old copies of "The Automobile," I would be pleased to receive index numbers for the past couple of years, say 1905 and 1906, and as they appear in future issues. This will save me a lot of trouble in looking up anything I want to find in back numbers.

I have a 16-horsepower, four-cylinder Minerva car, and have run it about 2,500 miles. It goes well, but I think I will try an American car next time and of the two-cycle type, as I notice by your paper that there are now several makers in this line. You will remember me asking about the Elmore car and requesting that some questions be inserted in "The Automobile" for me, but you did not do so, and by not doing so I inferred that the Elmore was not the best of cars and so did not give them my order. The "Autocar" often inserts questions asking motorists' opinions of different cars. I should often like to ask questions through "The Automobile," but it takes so long to get a reply, and you do not seem to go in for answering questions like some of the papers do.

Glenslov, Young, N. S. W.

J. H. McFARLANE.

Unfortunately we do not recall your ever having asked us any questions regarding the Elmore car, as they certainly would have been given due attention under this heading. Either your letter did not reach this office, or, containing a communication to the subscription department, this was attended to and the letter then placed on file inadvertently without being referred to the editorial department. We regret that you should have come to the

somewhat strange conclusion that you mention through our failure to answer the question as anticipated, particularly as this was the deciding factor in the placing of your order, though we presume it must be somewhat discouraging to indulge in further letter writing when a first communication goes unanswered and three months are required for a return mail. We are somewhat surprised that you should be of the opinion that we do not devote any energy to the maintenance of a correspondence department, as we have been running two to four pages of letters from subscribers right along and have been in receipt of numerous complimentary letters regarding the helpfulness of this feature of *THE AUTOMOBILE*. Our only restriction is that the letter should be of more than individual interest; there must be something of general interest to warrant publication, otherwise replies are made by mail. Regarding your reference to the correspondence department of the *Autocar*, we may say that the English are a nation of confirmed letter writers and doubtless the editor of that excellent journal could frequently fill an issue from cover to cover with letters alone did he so desire. To exaggerate a bit, an English autoist thinks accidentally dropping a wrench on his big toe while on a run sufficient provocation to fly to pen and paper and ask the editor if he does not think the manufacturer ought to know how to make a wrench that would not hurt. He not only writes one letter, but he sends a copy of it to every automobile paper he knows of. Hence the extremely well-padded letter columns. Americans have not contracted the letter-writing habit so badly and, moreover, would not wade through a lot of such trivial communications, though naturally all are not of this class by any means. We shall always be glad to hear from you on any subject of more or less general interest concerning automobiling for publication in this department, or if of personal interest to reply to the best of our ability by mail direct.

Will "Gasoline Sal" Kindly Oblige a Troubled One?

Editor *THE AUTOMOBILE*:

[804.]—I am a reader of your valuable magazine, and in your issue of June 13 one of your readers who signed himself "Gasoline Sal," to letter No. 783, interested me very much, and I would like to communicate with him.

He is able to get more mileage from a set of batteries than I ever heard of, and I would like to know what he is using, and particulars, as I am only able to get 600 miles on ten batteries with my four-cylinder machine.

Champlain, N. Y.

BERT F. PAINE.

As the sole object of the writers of letters who append such signatures as the one in question to their letters is to hide their identity, we are naturally not at liberty to divulge their names and addresses without their sanction. However, as you append your full address and the sponsor of the communication referred to is a regular reader of *THE AUTOMOBILE*, he will no doubt notice your request for further information as above set forth and correspond with you directly.

Why Do Seized Pistons Cause Damage, and How?

Editor *THE AUTOMOBILE*:

[805.]—Is it possible to allow a two-cylinder car to run without cylinder oil till it becomes so hot the engine stops on going downhill, without injury to the cylinders or pistons, and if they are injured in any way, how will the car show it, and in what way will you know whether the cylinders or pistons have been damaged?

Hamburg, N. J.

O. E.

It is possible to run a two-cylinder or any other engine so long without cylinder oil that the pistons will seize and the engine will stop, even though the car be coasting and trying to drive it while going down hill, but it is doubtful if this can be done without at least some injury to the pistons or the cylinder walls. The stoppage is caused by the unequal relative expansion of the cylinder and piston, the latter finally attaining a size which would be slightly larger than that of the cylinder bore were it not restricted by the latter. But before it finally reaches this point it becomes large enough to exert considerable pressure on the cylinder walls and its continued movement is apt to scratch

or score the latter. This damage will be apparent on dismounting the motor, or if this is not done and the injury is considerable, the motor will show it by a loss of compression and a consequent falling off in power, the hot gases leaking around the piston through the channels thus made.

Information Wanted Concerning New York State Law.

Editor *THE AUTOMOBILE*:

[806.]—Being a subscriber of yours, I take the liberty of writing you for some information in regard to license in your state.

What license do they require for the owner or the operator of car, and from whom shall I make application for same?

An early reply will be appreciated, as I wish to use a car during the months of July and August and expect to take it to Chautauqua in about ten days.

Pittsburg, Pa.

ADDISON S. ALTAFFER.

As you are already a car owner and your automobile is duly registered in your home State, carrying a Pennsylvania identification number, you will not need to take out any license to bring your car into this State, and you may drive it within the New York State limits indefinitely, in which respect the New York law is far in advance of either the Pennsylvania or New Jersey laws, which do not recognize other State registrations. For full information concerning the regulations in force in the different States we would refer you to the *Automobile Blue Book*, which is very complete in this respect.

Some Reasons Why the Gear-Set Is Necessary.

Editor *THE AUTOMOBILE*:

[807.]—I have noted your recent article regarding the elimination of the change-speed gearing from the automobile. This was an editorial, and the opinion was expressed therein that there did not seem to be much chance of such a great improvement as this coming to pass—at any rate, not in the near future. I am very much interested in the automobile, but must confess that there are a great many things regarding it that I do not understand very well, and would like to trespass on your time to the extent of having some of them made clear. No doubt there are many others whom such an explanation will benefit.

For instance, you say "For very obvious reasons, this is one of those questions that simply will not down."

What are these reasons, or, in other words, why should it not be possible to eliminate the change-speed gearing or transmission by improving the engine still further? I have had some experience with stationary gasoline engines, and have had occasion to see quite a number of them working at different times, but have never noticed that it was necessary to provide anything of this sort in order to enable the engine to carry the load, no matter how much was put on it within its capacity. Why is this?

Can you also tell why the steam engine has such a great advantage in this respect over the regular automobile motor? Of course, I realize that the power is generated in very different ways, but in the end 10 steam horsepower and 10 horsepower from a gasoline engine are one and the same thing, are they not? Can it be that the method of production influences the use of this power? For instance, a locomotive will start a tremendously heavy freight train from a dead standstill, the engine hardly making a stroke per second in starting, but even a light automobile has to have its motor humming at high speed before the power can be applied. To choose an example nearer home, the steam automobile starts with the first puff of its engine, but the gasoline motor must be running quite fast before it can be used. Some light upon these, to me, puzzling questions, will be appreciated.

Newark, O.

PUZZLED.

Your questions regarding the necessity for employing a change-speed gear on the automobile go to the very root of automobile engineering, where the application of the internal combustion motor to a road vehicle is concerned. While it may be natural to compare the stationary gasoline engine with the automobile motor in this respect, a little consideration will serve to show that the service rendered is no more alike than that of the stationary engine is to that of the locomotive hauling a heavy train of loaded freight cars, which you cite.

Stationary engines are usually designed to carry a more or less steady load; though, as you say, they will operate without the necessity of any intermediate steps in the way of gearing from practically no load up to the extent of their capacity, which would seem to place them in somewhat the same category as the

automobile motor. The chief point on which the difference hinges is that of speed; that of the stationary motor can be regulated so as not to vary more than 5 or 6 per cent. regardless of the load, but this is not possible with the automobile motor. The stationary motor is essentially a slow-speed power generator, many of them running at but 200 to 300 r. p. m., and it will be evident that such an engine can stand a great reduction in speed and still develop a large proportion of its rated output. For instance, a 25 per cent. drop in the 300 r. p. m. engine would only mean a reduction to 225 r. p. m., whereas the same drop in an automobile motor, designed to run at 1,000 r. p. m., would mean a reduction to 800 r. p. m., so that some form of gearing is imperative to permit the motor to run as closely as possible to its normal speed.

The difference between the steam and gasoline engines is even more marked. A single-cylinder double-acting steam engine is the equivalent of eight four-cycle gas engine cylinders, so far as the number of impulses received is concerned; the former receives two per revolution while the latter gets but one every other turn in each cylinder, so that this number is required. This is not the only difference, however, as the steam exerts its power expansively throughout the greater part of the stroke, whereas the explosion in the gas engine cylinder expends the greater portion of its power before the piston has traveled more than a third of its stroke. The steam engine action may be compared to an irresistible ram at slow speed, while the gas engine produces a blow, and it will be evident that a number of blows quickly repeated are necessary to equal the pulling power thus exerted, hence high speed is essential in the latter. This also enables the steam engine to start under load. The gas engine's reserve power lies in its running at normal speed, while that of the steam engine is pent up in the boiler. Ten horsepower always represents that amount regardless of the manner in which it is developed; but to make a ten-horsepower gasoline engine develop that much energy it must be run at the proper speed. To put it technically, the torque curve of the gasoline engine drops off at an alarming rate with a decrease in its speed, so that it has little power comparatively when running much below its normal r. p. m. rate.

CORRECTION REGARDING FRANKLIN MOTORS.

Editor THE AUTOMOBILE:

[808.]—In your issue under date of Thursday, June 6, we note an article on "Air Cooling of Automobile Engines," by our Mr. John Wilkinson. On page 930 there is an indicator card termed Figure 3, which is supposed to represent a card from a Franklin engine, on which is marked the point where the auxiliary exhaust opens, and attention is called to the effect of the auxiliary exhaust. Instead of this card being from a Franklin engine, however, it is in reality from another make of automobile.

It can be seen on this card that the back pressure at the end of the stroke is very high, and on the cards which we are sending you, at the same time, the effect of the auxiliary exhaust upon our en-



BLUE PRINT No. 13.

BLUE PRINT No. 15.

BLUE PRINT No. 7.

gines is very evident, a drop in pressure from a probable 45 lbs. down to anywhere from 1 to 4 lbs. This is the great advantage of the auxiliary exhaust, and it is our opinion you would like to correct this and show the true results as given by Mr. Wilkinson.

The three cards that we are sending you are as follows:

Blue Print No. 13—H.P., 10.75; R.P.M., 700; Cyl., No. 3.

Blue Print No. 7—H.P., 15; R.P.M., 1,000; Cyl. No. 2.

Blue Print No. 15—H.P., 20.4; R.P.M., 1,200; Cyl. No. 4.

You will note from this list that we are giving you three different cards at three different speeds and at practically 10, 15 and 20 horsepower. These cards show very decidedly the great advantage of the auxiliary exhaust.

Of course these cards, being indicator cards, not only show the wonderful drop in pressure, but show at the end of the power stroke that there is practically no back pressure upon the engine when the piston starts back on the exhaust stroke. These cards do not show the large amount of heat which is carried out through this

auxiliary, and by so doing maintain a lower minimum temperature in the cylinder wall. However, to one having an engineering education, it is possible to deduce these from the cards and the advantage of the auxiliary exhaust is very evident. To the layman the great drop in pressure is apparent, and there is no question that the elimination of back pressure at the end of the power stroke is a tremendous advantage.

These cards were all taken from a Schultz manograph and are to our way of thinking very reliable cards and very excellent records.
Syracuse, N. Y. H. H. FRANKLIN MFG. COMPANY.

MORE ABOUT THE ROADS ENTERING PARIS.

Editor THE AUTOMOBILE:

[809.]—Supplementing the letter of "W. F. B." in "The Automobile" of May 30, concerning the roads in and out of Paris, the writer of these lines acknowledges gratefully the correctness of the statements therein. There is, however, rather more pavé—all the way from Chatou to Nanterre and Puteaux—than your correspondent admits, and it is only avoidable by literally "finding one's way" via Rueil, by a crossroad none too plainly marked.

From Versailles the good road into Paris starts out by being a good road, but like the curate's egg, it is good only in parts, for it descends into the classification of a Chemin de Grande Communication, and the truckman and market-wagon driver who ought to keep to the Route Nationale, which goes by the way of Viroflay, goes where he pleases and makes the terrors of one road as great as those of the other, and incidentally damages a good road surface far more than the rouges ferrés or the antiderapants of the automobilist. The fault of all roads entering large cities and towns lies in the mixed classes of traffic which they carry.

The point the writer wishes to affirm is that the roads in and out of Paris are—as they are bound to be by nature and under existing conditions—entirely unworthy, and not at all suited to fast automobile traffic. The habituated Parisian chauffeur or the octroi smuggler knows some by-paths, no doubt, little frequented and perhaps possessed of good surfaces all of the way, but for obvious reasons they are not practical for the stranger tourist, and anyway the modern well-built and well-sprung automobile robs bad roads of a certain amount of the terrors which ruined many a gas-pipe chassis in the old days. It is the class of road and the class traffic, combined, that make the entrance to Paris so disagreeable.

The plea of the writer is for automobile, or "fast traffic," entrances and exits for large towns and cities, and encircling boulevards (as are so frequently found in France), which will enable one to pass around rather than pierce the heart of some old-world town with crooked, badly-paved streets. This is the case at Rambouillet, as your correspondent suggests, but these encircling roads should be better marked than they are.

The little pocket map, reduced from that of the Service Vicinal, shows plainly how bad the exits and entrances of Paris really are. It is because all classes of tax-paying traffic have a right thereon. Some day, surely, there will be automobile roads pure and simple as accessories to all large towns and cities, and Paris may be depended upon to have them as soon as possible, but why should not America inaugurate the idea? It is the automobilist, the man behind the wheel, who is to be the molder of public opinion, so let us all hang together.

Les Andelys, Eure.

FRANCIS MILTOUN.

REGARDING THE RITES INERTIA GOVERNOR.

Editor THE AUTOMOBILE:

[810.]—Relative to your reply under "Letters Interesting and Instructive," No. 772, June 6th issue, "The Automobile," page 935, you advise that you do not know the "Rites governor."

The writer would state that on page 189 of Gillingham's "Oil Engines," there is an illustration of the "Rites inertia governor," as applied to gas engines. This governor was originally gotten up for use on steam engines and then arranged to operate and change the point of cut-off. This is considered one of the most efficient types of the inertia governor ever gotten up. It was patented by Mr. Rites, a Cornell Civil Engineer School instructor.

Hoping this may furnish the desired information, I am,
New York City.

FRANCIS G. HALL.

A SOLUTION FOR CARBURETER POPPING.

Editor THE AUTOMOBILE:

[811.]—Regarding the trouble complained of by J. C. Moore in a recent issue, all else being right, it seems that the entire trouble is in the carbureter. At high speed there is not enough gasoline to mix properly with the increased amount of air taken in. Would advise making the hole where the gasoline enters the carbureter a trifle larger. I think if he will run his motor at a high speed he will find that the gasoline level in the carbureter is way too low—in other words, the gasoline does not come into the carbureter as fast as it goes out; in which case it will surely backfire.

Los Angeles, Cal.

GEORGE ARBUCKLE.



JUDGING from the present rate at which new cars are making their appearance in the Middle West, it seems to be a foregone conclusion that this part of the country is destined to be the center of the automobile industry in the United States. The latest arrival to bid for favor is termed the Halladay and is the production of the Streator Motor Car Company, Streator, Ill. The mainstay of the line is the 35-40-horsepower touring car known as Model B, which forms the subject of the illustration at the head of this page. A glance at the photograph shows that it is patterned on attractive and business-like lines so far as outside appearance is concerned, while a review of its specifications shows it to be designed after sound and well-approved engineering standards. The power plant consists of a four-cylinder water-cooled 35-40-horsepower Rutenber motor, the chief characteristics of which are too well known to require description.

Ignition is of the high-tension type, using a set of six-volt seventy-ampere hour accumulators as a source of current supply, with a supplementary battery of dry cells for emergency use. For the former a Duro storage battery is regularly supplied, while the coil is of the four-unit dash type and of Splitdorf make. In fact, particular pains have been devoted to making the equipment representative of the highest grade accessories that the American market affords, as will be evident from the use of the latest pattern Schebler carbureter to provide for this essential of the motor and a Hill Precision sight force feed oiler to take care of the lubrication. A Briscoe radiator of attractive outline forms the mainstay of the cooling system and is supplied by a gear-driven pump as well as being supplemented by a fan.

The groundwork of the chassis consists of a pressed-steel frame of the standard channel section and of substantial weight, heavily reinforced. This is carried on four well-proportioned semi-elliptic springs, the running gear consisting of 34 by 4 inch artillery wheels, carried on double ball bearings. Four-inch tires are fitted front and rear and while Diamonds on Marsh quick detachable rims form the regular equipment, the purchaser is given an option on this essential. The front axle is a one-piece drop forging of the customary I-beam section, with considerable drop under the motor, while the rear axle is an example of the latest improvement in the floating type. In this the weight of the car is entirely carried by the housing and the driving portions are readily removable for inspection and repair. The change speed gear is of the sliding pattern, with progressive form of operation, and provides the usual three forward speeds and reverse. It is supported about midway the length of the chassis on substantial cross girders, with a short shaft for the final drive, compensated by universal joints to provide against vertical and lateral play.

The clutch is of the standard conical type that is still favored by such a large number of makers, despite the improvements made in the multiple disc form. It consists of a leather-faced cast-aluminum cone engaging a recessed member made integral with the flywheel. A series of helical springs is placed between the aluminum cone and the leather facing, thus insuring steady and gradual engagement, as well as minimizing the wear on the facing and preventing its burning out, which was a common fault in earlier types. Four brakes are provided, two of the internal-expanding and two of the external-contracting type, all being centered in special hubs forming part of the rear wheel, in accordance with what has come to be regarded as the very highest form of standard practice for this important part of the car. The internal-expanding set constitutes the running brake and is pedal-operated, while the other set is the emergency and is worked by the hand lever. The latter is inter-connected with the clutch and its application disconnects the motor from the road wheels, both sets of brakes being properly equalized in order to prevent danger of side-slipping when suddenly used. The gear ratio of the transmission is designed to give the car a speed range of from five to fifty-five miles an hour on the direct drive or high gear. The wheelbase is 108 inches and the tread standard. Control is of the regulation type, employing small hand-operated levers placed on a stationary sector located over the steering wheel, while the coils, sight feeds and similar accessories are protected by a recessed dash formed of a curved steel stamping, brass bound. Fuel is fed by gravity from a tank located under the forward seat and having a capacity of fifteen gallons of gasoline, in addition to which an auxiliary tank is provided.

A laminated wood body, with divided front seats, attractively upholstered in durable leather and having a seating capacity of five to seven passengers, is provided, the tonneau being very roomy and affording plenty of space for the use of two revolving extra seats when desired. Rather an innovation has been introduced in body finishing by upholstering the rear face of the front seats, thus preventing the defacing of the varnish of this part of the car, as invariably happens under ordinary circumstances. Side doors are made amply wide and are hung so as to fold clear back over the mudguard, thus giving a full opening. The weight of the car all on is 2,600 pounds, and with the customary equipment of Solar searchlights and generator, as well as Solar side and tail lamps, horn, tool kit, and the like, the Halladay lists at \$3,000. It will be evident from the above that the makers have not attempted to introduce any startlingly original or revolutionary design, but have, in fact, assembled an up-to-date car from the highest grade of standard parts.



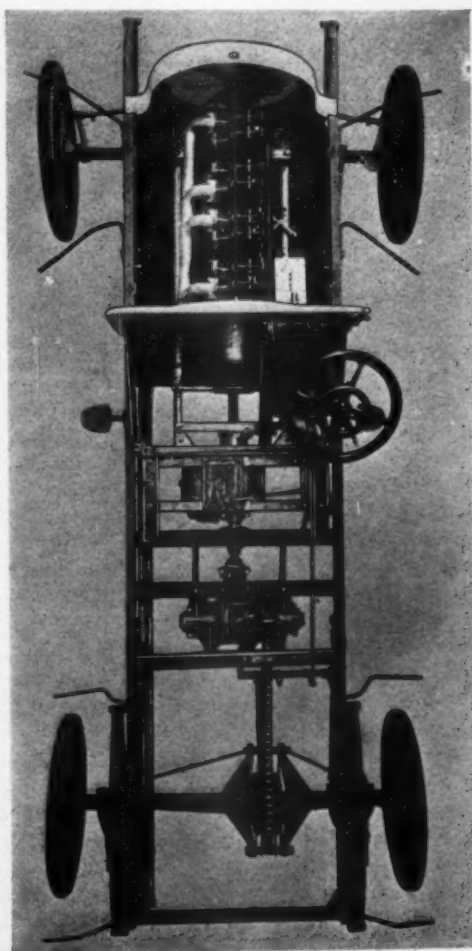
IN line with its policy of devoting considerable attention to the production of commercial vehicles, the Logan Construction Company, of Chillicothe, O., has just placed on the market a new Logan light delivery wagon, which will be known as Model R and list at \$1,800. It is designed to have a capacity of 1,500 pounds useful load and will consist of a standard pattern of chassis driven by a four-cylinder 20-24-horsepower air-cooled motor. The frame is of the standard pressed steel type, with ample reinforcement, while the running gear consists of fourteen-spoke artillery wheels mounted on large hubs specially designed for the builders. The motor has been subjected to the most severe tests that its designers could possibly give it, and the successful outcome of the latter has proved beyond a doubt that it will more than fulfill the expectations of its makers. In view of the use to which it is to be put, the chief requirement is that it should show the maximum of efficiency and reliability in unskilled hands, and the fact that it is air-cooled tends considerably to the realization of this object. It has usually been considered by builders of gasoline-driven commercial vehicles generally that the matter of noise was something which they did not have to consider, and as a result some of these cars are most objectionably noisy. The builders of the Logan, on the other hand, have paid particular attention to this essential, considering it equally important in the case of the commercial as the pleasure car, and in consequence it is claimed that the motor of this new car is practically noiseless, due in large part to the special construction of its valve-operating mechanism.

The same painstaking study to make the power plant as simple as possible in order to meet every requirement of this exacting service under the lack of care usually accorded the mechanism by the

average truckman, has also been devoted to the other essentials of the car. The clutch has been designed so that disalignment is practically impossible, and it is also self-adjusting to an extreme point, while any taking up required may be effected in a very simple manner. The change speed gear is of the sliding type and is designed to give a direct drive on the high gear, with none of the pinions in mesh, to make the car absolutely noiseless. The

countershaft is mounted on large roller bearings, with liberal end thrusts, final drive being by means of chain, long and careful experimenting on the part of the builders having demonstrated that this form of drive is not alone the most reliable but very much more durable under the trying conditions of commercial service. The chain is so placed as to give a direct pull and the radius rods are constructed so that the ends meet the centers of both the driving shaft and the rear axle, holding them rigid and equidistant, thus preventing all jerking movements of the chain regardless of the character of the roads. Four independent brakes are used, two on the rear axle, one on the countershaft, and one on the clutchshaft, the latter operating simultaneously with the disengaging of the clutch. This prevents continued rotation or spinning of the clutch in gear-shifting and facilitates the latter by an unskilled driver. Large universal joints are inserted between the clutch and the gear set, and between the latter and the countershaft. The matter of accessibility and ease of repair so essential in any commercial vehicle have come in for special attention and any part of the mechanism may be readily removed.

Every part of the mechanism is thoroughly encased, while the driver is protected by a glass wind shield and storm curtains, the body being of the regular solid panel order, with screen sides and end, the open space generous in size.



CHASSIS MODEL B LOGAN DELIVERY.



THE CURÉ DE GRAINCOURT AND HIS HOME-MADE AUTOMOBILE

SINCE tearful April was ushered in, a visit to the circuit on which Szisz, Wagner, Lancia and other speed kings will give their magnificent display this week has been the fashionable excursion of all Parisians. To follow the fashion, to visit charming old Normandy, and to inspect the circuit about which the whole world is talking, made a three-fold attraction far stronger than any that Paris can offer.

As Pierre Garcet fingered with the lever of a handsome Bayard-Clement, the artist, O'Galop, called out, "Don't forget to visit the Curé de Graincourt." "Entendu" came the brief response as the fast machine cut through the vigorous morning air.

It is only a run of about three hours to the track, but in much less time than that the peculiar charm which Normandy alone possesses makes itself felt to the traveler. Up the Seine Valley are vistas of the shimmering river, of ancient chateaux, of quaint Norman churches and solid picturesque towers, which cause a regret that they should be left behind so rapidly. Here is Eu. We are on the triangular circuit. Two kilometers ahead is the little village of Graincourt.

Over there to the right, peeping out above the mass of fresh spring foliage, is the white stone tower of the antique Norman church. A narrow, hollow road leads up to the small white sanctuary dominating the village from a small eminence. To the rear of the edifice is the *presbytère*, a modest dwelling just sufficient for the modest wants of the humble village curé. There is an electric bell—a rarity in unchanging Normandy. We ring, but nobody replies. From a low outhouse in the rear a cassocked figure comes out to meet us.

A tall, powerful, athletic looking man, used to manual labor, as is shown by the well developed muscles of his bare arms; an intelligent face, encircled by an iron-gray beard—a typical missionary fig-



HIS SPIRITUAL WORKSHOP.

ure. We are invited to the rear, into an open courtyard with several sheds leading off it. Three or four bicycles are turned upside down, in various stages of repair. There is a motorcycle, the motor dismantled and lying on the ground. Scattered about are empty gasoline cans, tools, oil cans, and the usual accompaniment of a mechanical repair shop.

"Are we at the village mechanic's, or at the curé's house?" one of the party asked.

"Both, monsieur," replied the curé. "I am the bicycle, motorcycle and automobile repair man of the district. For fifteen years I have been consulted by the inhabitants of the district on all kinds of mechanical difficulties. Formerly I was just an amateur mechanic; now it has become almost a trade."

"Why?"

"Well, times are hard, and the pay of a country curé is not sufficient for even his modest wants. Years ago I did a little bit of everything. Then the bicycle came along and I became interested in it. Little by little I became skilled in mechanics, and was often useful to members of my flock who had broken a few spokes or bent a crank. My reputation grew; visitors to the seaside resorts heard that I was not a bad hand, and customers increased.

"Then the motor came along. I took to that naturally. Here is a little voiturette I made myself."

It was a low-built, simple little car, with a single-cylinder engine carried well forward and a plain wooden box behind the steering column; roughly finished, but showing considerable mechanical skill. At our request the curé changed his skull cap for a broad-brimmed wide awake, gathered up his long black soutane and posed for his picture, his handy boy and *mecanicien* sitting on the floor board beside him.

"This motorcycle is my own," continued the priest when the photographic operation was over. "It is catalogued 23-4-horsepower, but by tinkering with it I have managed to get its power up to three. I should like to do more, but it is too costly for a simple parish priest. What I earn from repairs helps me along a little with these experiments.

After all, one can be a faithful priest, administer the sacraments, attend to confession, and handle the file and the wrench. Besides, it is useful to lots of people.

The door opened and the village postman stepped in. "Ah, you have come for your bicycle. It is not quite finished yet, *mon ami*, but you shall have it this afternoon. A few balls are broken and a bearing needs truing up."

He accompanied the rural letter carrier to the door, and stopped surprised at the sight of Garcet's Bayard-Clément. He raised the hood and remained in silent contemplation before the powerful cylinders, finally murmuring "*C'est tout de meme beau.*"

A run round the circuit was proposed. In a few minutes the greasy mechanic's soutane was changed for a clean gown reserved for ecclesiastical purposes. Garcet opened out, the indicator traveled round rapidly to 100. In the tonneau the Curé de Graincourt remained silent, the shadow of a smile on his lips.



WITH THE SWEAT OF HIS BROW.

HOW FRANCE CONTROLS HER AUTOMOBILISTS

By W. F. BRADLEY.

THE story is often repeated in Parisian motor circles of the American manufacturer who decided to introduce his steam automobiles into Europe. He broke ground at Paris, opened a store, advertised largely and was preparing to do a big business, when one day an officer stepped in and asked for the *certificat de conformité* for the demonstrating cars standing outside.

A look of bewilderment passed over the manager's face, followed by an expression of surprise when he learned that every machine before being sold in France must be approved by a government department known as the *Service des Mines*. Application was made for the necessary certificate; the machine, when examined by government experts, was not considered safe; modifications were ordered; they were costly and unsuited to the type; finally, in disgust, and with the loss of a few thousand dollars, the manufacturer abandoned the whole business.

What he should have done before attempting to place a machine on the market was to have obtained a *certificat de conformité*, or government approval of the model. It is a regulation to which all have to submit, both French and foreign makers, and applies not only to the first machine turned out of the factory, but to every subsequent new model.

All New Models Must Receive Government Approval.

Suppose, for instance, that an established constructor has produced a new six-cylinder chassis. He must apply to the *Service des Mines* a complete description of the model, giving power of the engine, speed at which it is run, dimensions of all working parts, a description of the clutch and type of transmission, stating the size of gears for each speed, show in detail how the braking systems are applied, give details of the carbureter, ignition and the size and nature of the exhaust.

When the sketches and descriptions have been approved—which they nearly always are—the machine itself must be presented for examination. Instructions given to the engineer of the *Service des Mines* are that the tanks, piping, etc., to contain explosive or inflammable matter shall be perfectly safe; that the machine shall not be of a nature to frighten horses or cause unnecessary smell; that all controlling organs shall be so grouped that they allow the car to be operated without drawing the driver's attention off the road; that steering gear must be safe and of a nature to allow the machine to turn within a reasonable angle. This is a matter that receives close attention, a machine faulty in this respect being rigorously refused. If the automobile exceeds 770 pounds in weight it must have a reverse gear. There must be two distinct braking systems, each one capable of stopping and holding the machine, and one of them being on the road wheels or drums forming part of the road wheels. This, too, is one of the matters given special attention. Legally no automobile may travel at more than 30 kilometers an hour in France; yet it is one of the happy inconsistencies of the French system that while one paragraph cuts down speed to 30 kilometers, another makes special provision for machines capable of traveling at a faster rate than a modest 18 1/2 miles an hour. There is a regulation which declares that any speed above thirty must be put out of use by means of a bolt fixed on the change speed sector; but this is always ignored.

A *procès verbal* is supplied to the constructor when his model is approved, this document giving him the right to construct any number of vehicles similar to the one officially approved. A copy of the *procès-verbal* must be furnished to each purchaser of a car, the constructor declaring that it is an exact duplicate of the model therein described, and the paper is accepted by the authorities as a guarantee that the machine is safe for service. Thus one detailed examination suffices for any number of machines of a type having received governmental approval.

Compared with the free American system by which any man who thinks he knows how can build an automobile and place it on the highways, the French method seems very officious. In general,

however, the regulations have a healthy tendency, for they exclude from public roads machines which are likely to be dangerous, and always keep off the market the products of men who would sacrifice all elements of safety in a desire to "get rich quick." As an example, firms we have been acquainted with have had a desire to suppress one braking system, believing that there was sufficient safety in a single set, and have reduced the strength of the rear axle, on a cheese-paring policy, to danger limits, only to be stopped by the *Service des Mines*. If enforced literally they would, like most regulations, be harsh; but there is a desire to help, not hinder, automobilists in France, and though regulations may be out of date, the application of them is generally of a very satisfactory nature.

Regulations for Owners and Operators.

A private automobilist, a newcomer to the game, is concerned with two regulations. He must register his machine, and he must obtain a driving license, both of which documents are accepted in the whole of France and the neighboring colony of Algeria. To



DRIVING LICENSE DELIVERED AFTER OFFICIAL EXAMINATION.

register the machine he must be armed with a copy of the *procès-verbal* supplied by the manufacturer, which declares that the automobile is a type which can be put into circulation. A registration number being allotted, and attached to the front and rear of the car, all that remains to be done for the machine is to pay the annual tax, based partly on horsepower, and varying somewhat according to locality. In Paris, a 30-horsepower machine would pay \$48 per annum, \$18 of which would be a fixed tax, and \$30 a tax on horsepower. It will be readily understood how strong is the temptation to underrate the power of a car. A gray card (*carte grise*) is the official receipt of the registration of the automobile, and must always be carried by the driver of the machine. It does not indicate that the tax has been paid, that matter being left entirely with the revenue officers, and in no way concerning the police or the gendarmes.

His machine *en règle*, the driver must obtain an operating license. Beyond the stamped paper on which the application must be made there is no expense in connection with a driving permit. The request is sent to the Prefect of the department in which the automobilist is living, or to the Prefect of Police in Paris, and must be accompanied by three small unmounted photographs. From the police department the application is transmitted to the district engineer of the *Service des Mines*, who calls upon the applicant to present himself with the machine he wishes to drive. The standard of efficiency required depends entirely on the inspector; sometimes a twenty-mile run is taken with frequent stops and restarting, changes of gear, reverse driving, and difficult traffic work, followed by a series of questions on the construction of the machine. At other times the inspector is satisfied if

the car is successfully negotiated round one busy block. If a license is required for every make of machine, the applicant must go through a practical test with at least three well-known makes and must submit to a close verbal examination. Immediately it is over the inspector writes out a temporary driving license declaring what make of machine the holder is entitled to drive, gasoline or steam, its horsepower, or giving permission for all systems, without limit of power.

A Rigorous System of Identification.

A few days later the temporary license is replaced by the official red card, issued by the police authorities, bearing on one side the name, address, age and birthplace of the holder, and on the other a photograph of the chauffeur. The two duplicate photographs are filed at police headquarters. So long as he retains his driving license (*carte rose*) and his registration card (*carte grise*) in his possession the chauffeur is certain of reasonable treatment by the police. Woe betide him, however, if at any time he is captured without these documents, or with cards not perfectly in order. Two condemnations in one year for inconsiderate driving would cause the card to be withdrawn and would put an end to the holder's career as a chauffeur.

The most valuable feature of the French system is the absolute identification which it affords. The first words of a *gendarme* or *sergent de ville* who has held you up for speeding or other offenses, are, "*Les papiers.*" In an instant the numbers on the gray card are compared with those hung on the front and rear of the automobile, and the photograph on the red card is compared with the features of the driver. All being in order, the officer makes a note of your name, address, and registration number and, unless the charge is a criminal one, leaves you free to continue your journey. Later you will be called upon to answer the charge in the courts, but you will never be hauled by the ears to the nearest police station and made to pay according to the fancy of a country judge with autophobile tendencies.

Thanks to this thorough system of identification, the way is paved for the abolition of arbitrary speed limits and the substitution of individual responsibility for accidents, a system which automobilists all over the world are endeavoring to obtain. Practically that is what it now amounts to in France. You cannot do what you like, as some foreign visitors seem to imagine, and if you drive recklessly Lepine's subordinates will act as harshly as any American constable armed with an unreliable stop-watch. There is an all-important difference, however, between the two systems. Lepine has said to his cyclist police: "Be guided by conditions and circumstances; ten miles an hour, though legal, would be dangerous under certain conditions; thirty miles an hour under favorable conditions would be reasonable." You may be stopped in Paris, at the end of a long, dirty ride and invited to clean the dust off your rear number; you will certainly be stopped if your exhaust is unnecessarily smoky; you must strictly adhere to the rules of the road, and must not drive recklessly in crowded thoroughfares; but on the open highway, where speed is safe, no one will interfere with you if you go "all out."

TO DISCUSS CHAUFFEUR EXAMINATIONS.

Many an observant person has been struck with the unsatisfactory nature of the automobile law in this country, by which any person, no matter how inefficient or physically unfit, can obtain a license to operate a powerful automobile. Grandmotherly legislation is not desired, but most automobilists would favor a system of examination for would-be chauffeurs, graduated according to the power of the machine that the applicant wished to drive. Many a man who is capable of handling a small runabout is altogether unfitted by training and temperament to handle a fast, powerful car, yet the law allows any person to take out a machine of unlimited power without any guarantee that he is a fit person to handle such a vehicle. With a rigid examination and a thorough system of registration and identification, automobilists could more strongly appeal for the abolition of many

of the petty annoyances to which they are now subjected by the police. Examination and registration would give official status.

Speaking on this subject to THE AUTOMOBILE representative recently, R. B. Whitman, head of the New York School of Automobile Engineers, said that he had assurance that the question of a compulsory examination for automobile drivers would be brought before the Legislature at Albany next session by two strong political organizations and vigorously pushed forward. "As the law stands at present," said Mr. Whitman, "our pupils, often ignorant of the very elements of automobilism, first get their operating license, then learn to handle a machine. A training and examination ground should be established in the suburbs of New York, where newcomers could learn to drive without any danger to the public, and where State examinations could be held. An examination would have a most beneficial influence in raising the standard of operators, reducing the number of incompetents, and would give the public a distinct assurance of safety that cannot be had under present conditions."

STEEL PAVED ROAD EXPERIMENTS IN FRANCE.

PARIS, May 21.—As an experiment, a portion of the roadway in the Rue Saint-Martin, Paris, has been paved with steel, according to a system invented by M. Chaumeret. The paving consists of a perforated steel plate, on each surface of which are a number of parallel vertical steel rails. As for wood paving, a cement bed is formed, on which is laid the steel plate. Space between the rails on both upper and lower surfaces is filled in by cement, that on the under surface serving to hold the plate to the roadbed and the cement on the upper face forming a solid bearing surface. The steel rails are sufficiently close together for a horseshoe or an automobile tire to cover at least three of them.

CLUBS DISCUSS INTERNATIONAL RACE RULES.

HOMBURG, GERMANY, June 18.—No decisions have been arrived at by the international conference of recognized automobile clubs held here immediately after the German Emperor's race. France proposed that uniform race conditions should be 2,420 pounds minimum weight, with a maximum fuel capacity of 4.4 gallons per 62.1 miles. Italy favored entire liberty in racing conditions, and England asked for 2,640 pounds minimum weight with cylinder bore limited to 130 millimeters. Unable to come to a decision, it was decided to bring the matter up again at a future conference at Ostend in July. A special commission was formed to study the question of uniform automobile laws, especially with regard to penal responsibility. Germany, France, England, Belgium, Italy and Austria were represented at the conference. In addition two delegates were sent by the French government.

THE NATIONAL HYMN.

By DWIGHT W. JONES.

My auto, 'tis of thee,
Engine of delivery—
Of thee I sing!
Car for which I have sighed
Car that its makers pride
Let all that wish to ride,
Full oil cans bring.
My touring auto thee—
Car of rapidity—
Thy name I love.
I love thy repair bills,
My frequent fines and "spills"
Result of "pace that kills"
I do, by Jove.
Let chauffeurs levers seize,
And we then take our ease,
In tonneaus strong.
Let smells fill up our wake,
Let all that breathe partake,
And then their silence break,
With curses long.

WEALTH OF NATIONAL AUTO CLUBS.

Over 1,000,000 francs, to be exact and to employ more familiar American terms \$247,992, constituted the income of the Automobile Club of France for the year 1906. It is the largest amount handled by any automobile organization in the world, in addition to being the greatest sum per member. The Automobile Club of Great Britain, which, with its membership of 3,097, is numerically the most important of all national clubs, barely reaches an income of \$110,000. Compared with the two European clubs, the membership of the Automobile Club of America appears small, its number of adherents last year not exceeding 1,450, but its total income for the same period ran up to \$83,768. Comparatively the income per head of the three most important national automobile clubs for the financial year 1906 is: Automobile Club of France, \$102.70 per member; Royal Automobile Club of Great Britain, \$35.50; Automobile Club of America, \$57.78.

It is of interest to note from what sources the powerful French club obtains its huge income, and in what manner it spends its funds. It is not generally understood by the motoring public that the Automobile Club of France consists of two distinct associations, the Société d'Encouragement—a body concerned in the development of the automobile industry—and the Cercle, a merely social club. Practically the two form one, for it is impossible to be a member of the Cercle without at the same time forming one of the Société d'Encouragement. Contrary to what pertains in this country, the French club has a monopoly of all automobile events. The annual show is under its care, the Grand Prix is its especial work, and every important national event is either under its direct control or its patronage.

Subscriptions form the largest source of the club's wealth, the total amount obtained from members under this head being \$104,960. The social side of the A. C. F. contributes much to its financial strength, \$80,340 going into the cashier's hands last year from taxes on betting in the clubrooms. It is this phase of the life of the organization which from time to time calls forth a protest from more sober-minded individuals, who would fain see the organization expel the gambler and devote its whole efforts to the strengthening of the national industry. Others put forth the specious argument that it is better to take \$5 from a gambler, whom nobody obliges to gamble, than to tax a window that you are forced to have if you do not wish to die of suffocation. Forty thousand two hundred dollars were in hand at the beginning of the year. The last annual automobile Salon produced a profit of \$10,000, and a rather larger sum came in from various sources. Last year's income was:

Members' subscriptions	\$104,960
Percentage on bets and various.....	80,340
In hand	40,200
Annual Automobile Salon.....	10,000
Various	12,492
Total income	\$247,992

Deducting the amount in hand at the beginning of the year, the club had the respectable sum of almost \$208,000 to spend during its last financial year. Expenses of upkeep of the former royal palace on the Place de la Concorde are high, \$64,800 being paid out for the building and \$64,400 for internal expenses during the past twelve months. The club is now rich, but there was a time when it was poor, as is shown by \$20,400 for old debts and indemnities to relatives and injured persons in the Paris-Madrid race. The library and various commissions charged with touring, racing, technical and other matters, spent among them \$10,200. Last year's Grand Prix was an unprofitable venture, as is shown by a dead loss in the treasurer's books of exactly \$11,000. The government took \$8,800 of the club's money in taxes; occasional receptions and soirées ran off with an even \$4,000, and the art gallery and annual art exhibition cost \$2,600. Add to this \$12,560 for various expenses and a total expenditure for the year of \$198,860 is reached. Even with such a big expense sheet there is a substantial balance on the right side, the year's operations having brought up the amount of cash in hand to \$49,132.

THE AUTOMOBILE CALENDAR. AMERICAN.

Shows and Meetings.

- Oct. 31-Nov. 7.—New York City, Madison Square Garden, Eighth Annual Automobile Show, Association of Licensed Automobile Manufacturers.
Nov. 30-Dec. 7.—Chicago, Coliseum and First Regt. Armory, Eighth Annual National Automobile Show, and First Annual Commercial Vehicle Show, National Association of Automobile Manufacturers.
Dec. 28-Jan. 4.—New York City, Madison Square Garden, Importers' Salon. C. R. Mabley, secretary and manager.

Races, Hill-Climbs, etc.

- July 4.....—Reading, Pa., Shillington Track, Race Meet of Berkshire Automobile Racing Association.
July 4.....—Lowell, Mass., Straightaway Road Races, on Lowell-Kingston Boulevard.
July 4.....—Harrisburg, Pa., Peter's Mountain Hill Climb, Motor Club of Harrisburg.
July 4.....—Houston, Texas, Race Meet, Houston Automobile Club.
July 6.....—Boston to Keene, N. H., and Return, Endurance Run of the Bay State Automobile Association.
July 10.....—Cleveland, O., Start of Fourth Annual Tour of the American Automobile Association, for the Glidden Trophy. Finishes in New York City on or about July 23.
July 13.....—Rochester, N. Y., Gymkhana Sports, Genesee Valley Park, Rochester Automobile Club.
July 13.....—Chicago, Race Meet for the Entertainment of the Glidden Tourists, Chicago Automobile Club.
July 25-28.....—Providence, R. I., Annual Meet of the Federation of American Motorcyclists.
July 27.....—Schooley Mountain Hill Climb, near German Valley, N. J. W. J. Morgan, manager, Bretton Hall, New York City.
Aug. 1.....—Algonquin, Ill., Hill Climb, Chicago Motor Club and Chicago Automobile Trade Association.
Aug. 5-10.....—Atlantic City, N. J., Automobile Carnival, Atlantic City Automobile Club.
Aug. 9-10.....—New York City, Brighton Beach Track, 24-hour Automobile Race, United States Motor Racing Association.
Sept. 2.....—Bridgeport, Conn., Labor Day Hill Climb, Sport Hill, Bridgeport Automobile Club.
Sept. 5.....—Chicago, Cedar Lake Economy Run, Chicago Motor Club and Chicago Automobile Trade Ass'n.
Sept. 14.....—Albany, N. Y., 95-mile Road Race, under the auspices of the Albany Automobile Club.
Oct. 19.....—St. Louis, Mo., International Aerial Race of the Gordon Bennett Prize. Aero Club of America.

Motor Boat Races.

- July 20.....—New York to Marblehead, Mass., 270-mile Motor Boat Race. New Rochelle Yacht Club.
Aug. 13-15.....—Chippewa Bay, St. Lawrence River, Gold Challenge Cup Race; American Power Boat Ass'n.
Aug. 22.....—New York to Jamestown (Va.), Annual Cruise American Power Boat Association.
Sept. 2-6.....—Jamestown (Va.) Exposition, Motor Boat Races.

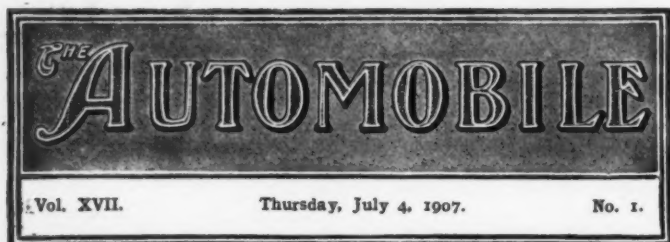
FOREIGN.

Shows.

- Nov. 11-23.....—London, Olympia Motor Show.
Nov. 12-Dec. 1.....—Paris, Exposition Decennale de l'Automobile, Grand Palais, Esplanade des Invalides, Automobile Club of France.

Races, Hill-Climbs, etc.

- July 14, 1908....—Paris to London, Aerial Race.
July 15-18.....—Ostend Week, Record Trials, Automobile Club of Belgium.
July 25.....—Ardennes Circuit, Belgium (German rules).
July 26.....—Ardennes Circuit, Belgium (Tourists).
July 27.....—Ardennes Circuit, Belgium (Grand Prix rules).
July 31-Aug. 8....—Belgium Regularity Contest for Touring Cars, A. C. of Belgium.
Aug. 1-7.....—Criterium of France, 1,750 Miles Touring Competition and 250-mile Race for the Press Cup, A. C. of France.
Aug. 11-29.....—France, Coupe de Auvergne.
Sept. 1-2.....—Italy, Brescia Circuit, Florio Cup. A. C. of Italy.



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The Glidden Tour in Its Aspect as a Test of Endurance. Added interest is lent to the holding of this year's A. A. A. Tour, which is to start from Cleveland for New York, via Chicago and Pittsburg, on Wednesday next, due to the totally unexpected outcome of the Sealed Bonnet contest, run off so successfully by the Automobile Club of America a fortnight ago. It will be remembered that it was seriously suggested that the same rules which characterized the latter contest should also be made to apply to the running of the tour for the Glidden and Hower trophies, but no one except the sponsor of the suggestion itself could see the possibility of holding a prolonged test of endurance under such conditions. It is generally conceded that the A. A. A. tour is the most trying test of the enduring qualities of a car that is held, but the number of successful contestants that marked its close during the past two years show conclusively that the automobile has reached a stage of perfection that is far beyond the standard of the tests designed to try its staying qualities to the utmost and in every way.

No such radical change in the rules under which next week's tour is to be held is possible at this late date, but it is evident that in the future endurance runs and similar tests will be such in name only unless a complete revision of existing standards by which the cars are judged are brought about. The regulations, as laid down for the holding of this year's celebration of America's classic long-distance try-out, have been carefully prepared with a view to preventing the unsatisfactory state of affairs that is inevitable when a large number of the contestants finish with perfect scores, and, in view of the conditions extant at the time they were prepared, there naturally appeared to be no alternative but to adopt some

such arrangement of this kind. With the amendments that have been made since they were first published, they are probably as agreeable to the competitors as any that could be devised; but there appears to be little doubt that another year will see the adoption of far more stringent conditions. As it is, the success of this year's tour already seems assured, and the working of the carefully prepared plans for its regulation will be watched with interest. Any car that can survive the 1,500-mile journey has reason to exploit its reliability and staunchness, and in confidence bid for the patronage of the automobile-buying public.



Great Future of the Original American Automobile. It is extremely interesting to note what a complete reversion to the type of self-propelled vehicles, originally brought out in this country, has taken place within the past few years. Pioneer builders found so very little material available to their needs that it was only natural that existing forms should have been impressed, and a horseless carriage that was true to its name should have been the result. Its shortcomings were painfully apparent, even to its own builders, despite which they clung to it tenaciously. Foreign designers pointed the way to progress, and it was not until the buggy was abandoned that a real advance was brought about, and that along totally new lines.

One, or possibly two, American makers still cling to it, but for all practical purposes its existence had been ended as completely as was that of the high bicycle with it was superseded by the low two-wheeler. Unfortunately, the automobile, as we know it today, does not lend itself to production at a figure within the reach of a very large part of the population; and, even though obtainable at a greatly reduced initial cost, its maintenance is a tax of too burdensome a nature for the many. This led to the revival of what one maker has aptly termed the "buggy-about" a few years ago, and this light, easily handled and cheaply kept vehicle bids fair to become a tremendous factor in the American automobile industry. With its small power plant, few parts and easily understood mechanism, it is simplicity itself, and that it is capable of covering long distances at a minimum cost is evident from the recent performance of one of these high-wheeled horseless carriages, which covered 200 miles, under most adverse conditions of road and weather, on eight gallons of gasoline and three pints of lubricating oil. The agricultural population is in pressing need of a quicker and better means of transportation, and there is little doubt that this American type of automobile represents the solution that will be availed of in thousands of instances.



Present Status of the Electric Automobile.

Just because it is not as constantly in the public eye as its confrere, the gasoline car, many are prone to regard the electric automobile as a dead letter, confined, more or less, to a comparatively small number of cabs in the larger cities—and many of them out of date at that—a slightly less number of heavy trucks and a sprinkling of pleasure vehicles. Nothing could possibly be further from the reality as represented by existing conditions today. It would be idle to assert that the electric can ever hope to compete with the gasoline-driven car on its own ground, for obvious reasons, and it is usually the man who seriously considered the former as a serious competitor in earlier days who now regards it as having passed away altogether.

In its own particular sphere of usefulness there is nothing superior to the electric automobile, and that its radius is necessarily limited by the mileage obtainable from a single charge of the battery has not militated against it in the least for town service. If there were no other evidence forthcoming to show its popularity, the fact that an agent in an upstate city can order a trainload of electrics at a time should be conclusive. A report of the number of electric cars annually sold in this country and the constant use to which they are put would be little short of eye-opening.

THAT CHICAGO SHOW SITUATION.

Drawing for spaces at the next Chicago show was held at the headquarters of the National Association of Automobile Manufacturers, 7 East Forty-second street, on Monday, and was participated in by those members who are also members of the American Motor Car Manufacturers' Association. Prior to the actual drawing, however, a special committee composed of Benjamin Briscoe, Maxwell-Briscoe Motor Company; William Mitchell Lewis, Mitchell Motor Car Company, and Alfred Reeves, general manager of the Association, waited upon the Executive Committee of the National Association. The delegation from the independent camp, the first two of whom are also members of the National Association's committee, presented a formal petition asking that A. M. C. M. A. members be placed on the same basis as all others in the drawing. It was also proposed that members of the American Association should receive a pro rata share of the profits of the show, the total to be donated to the cause of furthering the good roads movement.

The suggestions from the delegation were embodied in the following terms, as sent out by the publicity department of the A. M. C. M. A.:

All recognized automobile manufacturers who support association work are entitled to consideration, proportionate to their outlay, in the distribution of any profits which they all create.

The fact that some manufacturers who have demonstrated their faith in organization by joining some other body are not members of the N. A. A. M. is due to the disinclination of the Executive Committee to admit them, and not to a disinclination to become members or lack of effort to secure membership.

Should these facts be allowed to operate against them for the advantage of other but more favored manufacturers?

In other words, should the N. A. A. M., Inc., receive not only the entire profits attributable to the exhibits of its own members, but also of the outside exhibitors who are denied the privilege of membership?

If not, and the premises are correct, the outside supporters of association work should be allowed such share of the profits as their payments for space bear to the whole amount paid for automobile space.

Hence it is suggested that the N. A. A. M. rebate that proportion of the profits of the Chicago show which the payments made by A. M. C. M. A. members who are not members of the N. A. A. M. bear to the whole amount paid for automobile space; the sum total to be donated to the good roads movement now forming.

In line with the above, it is felt that the members of the A. M. C. M. A. and the members of the N. A. A. M. should all stand on the same basis in the matter of drawing for space. It is felt that this would be fair and equitable, especially as it could not, under any circumstances, disturb the positions of the N. A. A. M. members who have shown in big spaces for any great length of time.

The Executive Committee of the National Association refused to agree to any of the proposals of the above resolution and the drawing took place as originally arranged for. Members of the independent association drew for their spaces as usual, which means that after the members of the N. A. A. M.—the promoting organization—had had precedence in the drawing, outside makers were allowed to take their chances on the remaining spaces. As until July 15 is allowed to ratify the drawing by making the first payment for the spaces, the outcome is still in the balance.

In the meantime the A. M. C. M. A. will hold a special meeting to consider the matter. The questions to be decided will be whether they will exhibit at Chicago or not, and whether to hold an independent show in conjunction with the Chicago Automobile Club, with a third and more or less formal question that is really part of the first in case this should be decided in the negative. This is, whether New York is not really the natural show place of the country and one show here is sufficient for all purposes.

It is expected that either Chicago will be dropped entirely or an independent show will be held in conjunction with the Chicago Automobile Club, it being understood that options have been obtained on two available buildings.

From N. A. A. M. headquarters came word that it had no announcement to make in reference to the matter, and that the action of its committee spoke for itself at this time.

JERSEY MAY GET VANDERBILT RACE.

There is a strong possibility that the Vanderbilt Cup race may be run on a New Jersey circuit this fall, the conference of A. R. Pardington, acting chairman of the Cup Committee, and Wilbur F. Sadler, Jr., president of the Associated Automobile Clubs of New Jersey, at Trenton on Monday last with Governor Stokes having borne fruit. The Governor was at first opposed to the holding of the race, but he saw a great light when informed that last year's event left \$600,000 in Nassau County. On the assurance of Mr. Pardington that all expenses incident to the race, repairing road damages, employing police and the like, would be paid by the Cup Commission, the Governor agreed to send a special measure to the legislature, urging the passage of an act legalizing the closing of county roads, provided the proper bill were ready for introduction; he was also agreeable to calling out the militia for the purpose of policing the course. Thirty-mile circuits over good roads are available in Mercer, Union, Essex, and Monmouth counties, the rivalry to obtain the race being greatest between Mercer and Monmouth, the board of trade of the former making strenuous efforts to land the prize.

The dates set are October 12 for the elimination and October 19 for the race proper, and up to last Saturday there was still some hope that the event might be held on Long Island as usual. On that day, a delegation composed of A. R. Pardington, President Oliver A. Quayle, of the New York State Automobile Association, and Sheriff Gildersleeve, of Nassau County, accompanied by his counsel, presented a petition to Governor Hughes at Albany with a view to having a regiment of militia detailed to patrol the course. But neither the fact that the Federal government patrolled water courses for boat races, the financial inducements involved, nor that New Jersey was willing to grant the request for troops, were sufficient to make the Governor take the petitioners' view of the question, the chief executive placing his refusal on the ground that such duty would tend to reduce the morale and efficiency of the National Guard, so that all chance of New York having the race has practically vanished.

N. Y. STATE ASS'N OF A. A. A. GROWING.

Four clubs were added to the roster of the New York State Association of the A. A. A. at the meeting of the board of directors held in New York City, June 29, at 437 Fifth avenue, the A. A. A. national offices. President Oliver A. Quayle presided, and Secretary C. D. Hakes and Directors S. M. Butler, C. M. Lowther, A. C. A.; A. H. Knoll, A. C. of Buffalo, and the National Secretary, F. H. Elliott, were present. The Long Island Automobile Club, Adirondack Automobile Club of Sandy Hill, Automobile Club of Schenectady, and Cohoes Automobile Club were elected to membership. N. M. Pierce resigned as director of the Binghamton Automobile Club and Guy Beardsley was designated. Mr. Pierce's removal to Buffalo accounts for his resignation, but he will retain the treasurership. N. Z. Yelverton was named as the Schenectady club director.

In his report President Quayle said: "The policy of this Association for the four years last past has been that of opposing legislation of any kind or character. The time has now arrived when it will be necessary for us to assume the more aggressive attitude of suggesting provisions of a new law, and I am personally hopeful that this Association will at the next session of the Legislature urge for passage a law which will provide for a more thorough means of identification; the absolute abolishing of all technicalities as to speed regulations, requiring simply that the automobile shall proceed at all times at a rate of speed which shall be reasonable and proper, due regard being given to the rights of all other users of the highway, whether it be in the open country or in the thickly settled portions of the city; that an annual registration fee be imposed and that all such money so derived, together with all money collected from fines, be appropriated and put into a fund to be used exclusively for the maintenance of the improved highways of this State."



LOOKING DOWN TRINITY BOULEVARD, ATLANTA, ORPHANS' DAY.

GEORGIA'S CAPITAL CITY HOLDS ORPHANS' DAY.

ATLANTA, GA., July 1.—Reports of the most successful celebrations of Orphans' Day that the country has seen still continue to keep coming in, owing to the fact that many cities found it inconvenient to observe the day formally set for the purpose and celebrated when it suited them best. This was the case of Atlanta, Ga., and the hospitable southerners did the thing up fine. In fact, Atlanta had more cars—big cars at that—and fewer orphans than any city that has yet placed itself on record as having given the orphans a bang-up time of it. There were 85 touring cars and only 335 orphans, and THE AUTOMOBILE's correspondent figured out that this band, the aggregate capital of which would not total 30 cents, took entire possession of automobiles valued at \$300,000 and made free with Ponce De Leon Springs, representing an investment of an additional \$200,000. There was a contingent from all the orphan asylums of the city, and the committee in charge composed of Robert F. Sheldon, Edward H. Inman and Charles H. Ryan, who were assisted by a number of other enthusiastic autoists.

ST. LOUIS CLUB HOLDS SUCCESSFUL DAY.

ST. LOUIS, Mo., June 28.—Probably few of the automobile clubs in other cities of the country made such a success of the Orphans' Day celebration as did the local club. June 19 was the date set, and the appeal for cars met with a generous response, some sixty odd cars being in line, while the arrangements for the entertainment of the city's waifs were perfect and every thing went smoothly. Even though the occasion was a special one, on which the most hard-hearted of upholders of the law could be expected to close an eye on a little speeding, all the drivers, who were in numerous instances the owners themselves, observed the law strictly, much to the disappointment of the children, who would have preferred to go a little faster. It was estimated that something like 2,000 children were entertained, those from the northern and western parts of the city being taken out Clayton road to Forest Park and the others being driven to Tower Grove Park, so that there really were two independent celebrations, each of which was an unqualified success that will long be remembered.



ORPHANS' DAY ON THE PACIFIC COAST, AT SEATTLE.

BUFFALONIANS GIVE ORPHANS AN OUTING.

BUFFALO, N. Y., July 1.—Twelve hundred orphans in Buffalo institutions were made exceedingly happy last Friday by the members of the Automobile Club of Buffalo and the management of Luna Park, a local summer resort. It was Orphans' Day in the annals of the Automobile Club. After energetic work Secretary D. H. Lewis managed to get 200 Buffalonians and business houses to donate the use of their private cars.

The parade started from the rooms of the Automobile Club at Main and Edward streets about 2:30 o'clock in the afternoon. The parade had a few accidents, such as slight collisions and burst tires, but no injuries were reported. The machines traversed the principal thoroughfares of the city and then took a drive through the parkways. The parade wound up at Luna Park, where Manager MacDroom saw to it that each little orphan was given a free pass to every concession in the place. They also received ice cream and sandwiches and had their pictures taken several times. The parade was headed by President Seymour P. White and Father Baker's boy band. It was divided into eight divisions in charge of A. B. Wright, Cary Rumsey, John S. McFarland, A. H. Knoll, C. N. Babbitt, Frank Snyder, Charles E. Throop and President White.



BUFFALO ORPHANS ENJOYING SIGHTS AT LUNA PARK.

ORPHANS' DAY IN THE SMOKY CITY.

PITTSBURG, PA., July 1.—Under the auspices of the Automobile Club of Pittsburg over four hundred happy orphans, each holding in his hand a small American flag, enjoyed the sights of Pittsburg Thursday, June 27. Special arrangements had been made with the weather man, and a more delightful day could not have been found. Eighty-two of the finest automobiles in Pittsburg were used to carry the children.

At Luna Park the children were given full sway, and remained a good part of the afternoon, making use of the amusement devices. This is the third year that the Automobile Club of Pittsburg has thus feasted the orphans, and although the event did not occur on the regular scheduled day, it was by far the most successful they have ever tried. The committee was composed of Edward Kneeland, Paul C. Wolff and Philip S. Flinn.

ORPHANS' DAY OBSERVED OUT ON THE COAST.

SEATTLE, WASH.—June 24.—Not to be outdone by any of the eastern cities despite their greater size and larger number of automobiles, Seattle went in for an Orphans' Day celebration, which, except in point of size and the fact that it was held ten days later than the day set by the A. A. A., was as successful as any that have been held. G. W. Miller, manager of the local Winton branch, was in charge and took fifty-one children from the Orphans' Home for an afternoon of enjoyment.

ENERGETIC HAPPENINGS AMONG THE CLUB

Chicago Club's New Home Is Formally Opened.

CHICAGO, July 1.—It was at first intended to put part of the magnificent new home of the Chicago Automobile Club on Plymouth place in commission last week, but it was finally decided to await the completion of every department, so that the club's new quarters could be opened all at once, and this was done officially to-night, the ornamentation of the grillroom and some of the furniture for other parts of the building, which were the only things missing last Thursday, having been installed.

With the exception of some space reserved along the Plymouth Court frontage for two stories, almost the entire main floor is given over to the garage. For the living quarters the members must either descend to the rathskeller or go to the second floor.

The garage is entered from the street by a passageway which opens upon the entrance for the disembarkation of passengers. The entire garage structure is separated by a brick fire wall, unbroken except by a single iron door on each floor, from the rest of the building. The main part of the structure rises three stories above the garage, in order that better lighting from the east may be secured in the sleeping apartments.

Extending across the entire width of the second story is the lounging room, a colonial hall in gray wood and soft green decorations. Corresponding in location to the lounging room, but one story higher up, is the café, an old English eating hall with Dutch olive beams of massive dimensions, wall decorations of dark red and gray, and carpet and velvet window hangings to match. The companion eating hall is located in the basement, where a combination billiard room and grill has been devised.

The club is making elaborate plans for the reception of the Glidden tourists on their stop over here on July 12 and 13, a formal welcome at the Auditorium being the first event on the program, the club's new house being thrown open to the visitors during their stay. There will be a theater party on the evening of the day of arrival, with a run to Ravinia the next day.

How the Ontario League Discourages Recklessness.

TORONTO, ONT., July 1.—The Ontario Motor League has been active of late in discouraging reckless driving. It will be remembered that it was embodied in the constitution adopted at the recent organization meeting that one of the objects of the league should be to secure the proper observance of the law.

There have been the usual number of complaints about alleged misdoings of autoists from the public. The Motor League has taken steps to investigate a number of these, with the result that it has brought some of its membership on the carpet. In many cases, however, the trouble has come from chauffeurs who are irresponsible. It is somewhat difficult to discipline them, but the Motor League has been successful by personal interviews and threats and even by assisting in the prosecution.

Canadians Want Reciprocity.

MONTREAL, QUE., July 1.—The Automobile Club of Canada is in communication with the American Automobile Association, Royal Automobile Club of Great Britain and the Automobile Club of France for a reciprocal arrangement whereby their members, while touring in foreign countries, could have granted them the privilege of these clubs. This will undoubtedly result in the

simplifying of the customs regulation governing the use of cars of tourists who wish to cross the border from either country, as well as providing of mutual benefits in various other ways.

Maryland Club Postpones Rowe Trophy Tour.

BALTIMORE, MD., July 1.—The first tour for the Rowe trophy has been called off until some time in September. These tours were to have been started this month, but the entry lists could not be filled out to the satisfaction of the promoters because of the fact that most of the members of the Automobile Club of Maryland, who were the only ones eligible to participate in the contests, will be out of the city during July and August.



CHICAGO AUTOMOBILE CLUB'S NEW HOME.



A CORNER OF THE CARD ROOM.

THE AMPLE COLONIAL LOUNGING ROOM.

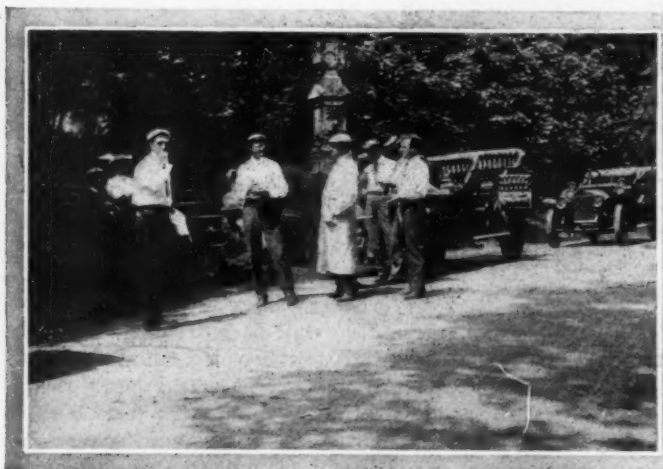
BACHELOR SUITE ON UPPER FLOOR.

Dr. Rowe has also decided to hold but one tour each year instead of three as originally intended. This tour will be at a distance of 400 miles, the route of which, however, has not yet been decided upon. It was at first intended to hold a series of three tours each year at distances of 100 miles, 200 miles and 400 miles, but all except the last has been abandoned.

Washington Club's Tour to Gettysburg.

WASHINGTON, D. C., July 1.—The Automobile Club of Washington this season is putting forth every effort to awaken interest in touring. C. Royce Hough, the newly elected captain, and his able lieutenant, T. B. Spence, are veterans at touring.

Probably the best trip the club has yet taken was that to the Gettysburg battlefield, June 22 and 23. The weather god was in a genial mood and the roads were in magnificent shape. The route was the familiar one out the Brightwood road to Olney, and thence to Ridgeville, where the National pike was taken into Frederick. From Frederick the Emmitsburg pike, one of the finest and best kept roads in this section of the country, was taken to Emmitsburg, while from the latter point to the edge



ON THE SUMMIT OF BIG ROUND TOP, GETTYSBURG.

of the battlefield the route was over a common dirt road, marked by deep gullies all the way. This bit of road is the only bad one to be found between here and Gettysburg, and leading as it does into the battlefield and being traversed by thousands of automobiles and other vehicular traffic, the wonder of it is that the Maryland authorities do not make some effort to put it into passable shape. The Glidden tourists will probably find this road the meanest in their long tour.

Maryland roads are infested with innumerable dogs and chickens, and in order not to offend the farmers, who are favorably disposed to automobilists, the tourists before starting were cautioned not to ruthlessly run over the pests. Several drivers had narrow escapes from running over dogs that persisted in lying in the middle of the road, while more than one car was brought to a standstill by an obstinate cow that refused the right of way and would not budge.

The most pleasing part of the trip was the ride between Frederick and Emmitsburg, a distance of about twenty-three miles. The pike is operated by several private companies which collect toll, and they never let the road get rutty. The pike runs through Frederick county, said to be the third richest agricultural county in the United States, and the well-tilled farm lands are a delight to the eye. A few miles out of Frederick is the old Schley homestead, where Rear Admiral Schley was born. It is just off the roadside, and its shaded driveway is one of its attractive features.

Entering Emmitsburg the tourists paused for a while and were soon surrounded by many inhabitants of the quaint little town. The town gains distinction from the fact that it was here that General Reynolds, commanding the first corps of the Army

of the Potomac, got his troops in shape for the march into Gettysburg. His troops marched over the road heretofore mentioned and the tourists as they bumped over the ruts and stones could not help but express pity for the soldiers compelled to march over such a road in the hot sun. In due time the edge of the battlefield was reached and then a quick spin over Confederate avenue soon brought them into Gettysburg. Headquarters were established at the Gettysburg Hotel.

After a good night's rest the tourists started early Sunday morning to inspect the battlefield. Under the guidance of Mr. Hoffman, who was born and raised in Gettysburg and who participated in the great three-day struggle, the tourists took in every part of the battlefield from Big Round Top to Little Round Top. Three hours were thus spent, and then after an old-fashioned country dinner the cars were started homeward.

Schenectady Club Organizes with 34 Charter Members.

SCHENECTADY, N. Y., July 1.—There is now a Schenectady Automobile Club to swell the large number of organizations that New York State boasts of. Oliver A. Quayle, president of the New York State Automobile Association, and C. D. Hakes, secretary of the Albany Automobile Club, made addresses on the purposes of automobile clubs and the good they are doing, at a meeting held here last week. The meeting was presided over by C. H. Benedict as chairman, who was later elected president of the newly formed club, with Gerardus H. Smith as vice-president, A. F. Knight, secretary, and J. W. Yelverton, treasurer. Good roads, national legislation and the suppression of lawlessness in the use of automobiles will be the chief aims of the club. The annual dues are to be \$5, with no initiation fee.

Successful End of Albany Club's Annual Run.

ALBANY, N. Y., July 1.—Fourteen of the sixteen cars that participated in the annual run of the Albany Automobile Club survived the 700-mile trip to Atlantic City and returned, according to schedule, on Wednesday last, several of them with perfectly clean scores, prominent among these winners being Miss Edith Franklin, who drove her Franklin throughout the tour. President McClure, who offered a cup to the contestant to finish with the best score, met with difficulties himself just outside of Trenton on the return trip and had to give up. The other contestant to be eliminated was A. C. Thorpe, who dropped out at Atlantic City. Just above Poughkeepsie, on the return trip, several of the party fell into a trap and were compelled to shell out for the support of the town and, incidentally, of the constables.

Sacramento Soon to Have an Automobile Club.

SACRAMENTO, CAL., June 26.—A large number of local automobilists met at the Chamber of Commerce in this city recently to discuss plans for the organization of an automobile club, which will affiliate with the Sacramento Country Club and erect a suitable clubhouse here. The latter organization has long been in need of larger quarters, and the suggestion that an automobile club be formed to co-operate in providing a modern and commodious clubhouse met with instant approval. R. C. Cash called the meeting to order and was elected chairman, with M. R. Upson as secretary. A site of 110 acres, adjacent to Orangevale Lake, was offered for \$20,000, and it is proposed to sell bonds to the extent of \$40,000. A committee composed of Messrs. Crowell, Hevener, Cash and Dr. Griffith was appointed to take charge.

Rain Caused Postponement at Rochester, N. Y.

ROCHESTER, N. Y., July 1.—Because of a drizzling rain which bade fair to develop into a downpour, the gymkhana sports of the Rochester Automobile Club, which were to be held this afternoon in Genesee Valley Park, were postponed until Saturday afternoon, July 13. About two hundred cars were lined up around the course, and several hundred spectators were present only to be turned back home disappointed.



KILOMETER STRAIGHTAWAY, JUDGES' BOX ON RIGHT.

LONDON, June 18.—Nineteen miles from Waterloo station Britain possesses the only race track specially constructed for automobiles to be found in the wide world. Speed restrictions have been so severe in the tight little island and the Britisher has had such scant opportunities of either witnessing or indulging in any rate of travel above the normal, that he is to be excused for his display of excitement when the scene of world's records is brought to his front door.

Nine months ago, on his private estate near Weybridge, Mr. F. Locke King began the construction of a special race track, designed to admit of speeds of 100 miles an hour with perfect safety. By employing large gangs of workmen night and day, the course has been finished in record time. It is pear-shaped, with curved ends, banked to a maximum height of 28 feet, and is 2 3-4 miles round. A straightaway, laid diagonally across the oval, gives an additional length of five-eighths of a mile. Average width is 100 feet. Some idea of the prodigious nature of the undertaking can be gathered from the fact that although the ground was favorable for a course, the total cost is estimated at \$750,000. The entire track is concreted to a depth of five inches, and it is considered that, despite the rapid construction,

the foundation has become sufficiently congealed to cause no future trouble.

Owing to the formation of the land, excellent accommodation is provided for the public, there being seating room for 5,000 people and standing room for 150,000. Within the track,

near the finish of the straightaway, are clubhouses with garage accommodation for a number of cars, and on the opposite side of the straight course the judges' box has been located, in front of which all finishes will be made. From the high ground of the island on which the judges' box is placed an excellent view of the entire course is obtained. Admission to this vantage ground is by means of a bridge spanning the track, or by a tunnel passing under it. Large score boards within the club enclosure opposite keep the public posted on the names of the competitors and their positions in any race. At the fork where the straight kilometer track leaves the main course the width is 250 feet.

A double purpose will be served by the track. It will be used by the Brooklands Automobile Club for public races, the intention being to hold periodical meetings on much the same lines as horse races are held, and it will be a training ground for manufacturers. There is no doubt but that the track will be enormously successful as a public race ground. It is close to London, placed in a picturesque country, will offer more thrilling scenes than any race course, and promises to provide well for the public. Any day when there is no racing, with the exception of Sunday, manufacturers may use the course for testing cars on payment of a fee of five dollars. Members of the club have free use of the track, and it is expected that most manufacturers will apply for membership. Twenty-eight closed garages have been erected, to be rented to constructors in order that they may keep cars permanently on the track ready for demonstrations.

FIRST 24-HOUR RECORD AT BROOKLANDS.

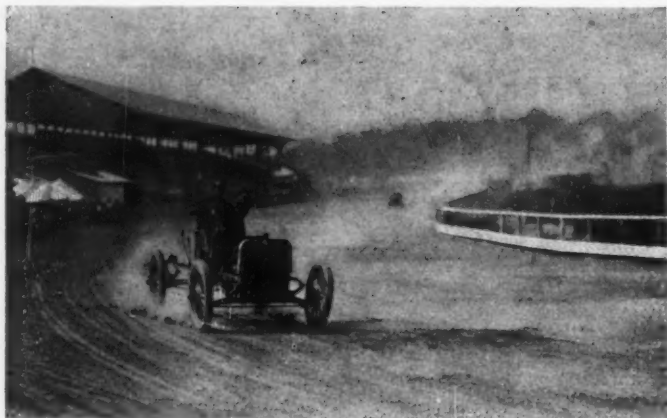
LONDON, June 29.—S. F. Edge has more than fulfilled the promise made a few weeks ago to travel continuously 24 hours at an average of sixty miles an hour, on the Brooklands track. To-day, on a six-cylinder Napier, he covered 1,581 3/4 miles in 24 hours, which gives an average of nearly sixty-six miles an hour. The first 100 miles were covered in 85 minutes, and 1,000 miles in 14:54:15. As was expected, Edge has broken all 24-hour track records, for he is the only man who has yet had an opportunity of speeding on this unique automobile course.



BANKING 28 FEET HIGH, FOR 100 MILES AN HOUR.



AN ORDERLY, LEISURELY PROCESSION ON OPENING DAY.



KULICK DRIVING FORD SIX IN THE DETROIT RACE.

THAT RECENT 24-HOUR AT DETROIT.

DETROIT, July 2.—In winning the recent 24-hour race on the State Fair Grounds track, Frank Kulick did not lower the existing record held by Clemens and Merz with a "30" National and made at Indianapolis, November 16-17, 1905. Its total was 1,094 3-16 miles, and while Kulick and his occasional mate traveled 1,135 miles, the journey was accomplished with two Ford six-cylinder machines, so that the performance, though a most creditable one from every point of view, cannot properly be considered as an officially sanctioned record under the existing rules.

The wreck of the Pope-Toledo in the Detroit race will be handed down in automobile history. Lytle, for six consecutive hours, without leaving his car or touching it with a wrench, broke records for a circular track. At this point a rear tire burst, wrecking the car and throwing out the driver. The duplicate entry driven by Lohse having also met with an unavoidable accident before the race began, Lytle took a Pope-Toledo demonstrator of the same model, that had been driven over 22,000 miles, and continued the race, finishing second by only twenty-six miles, having gained the difference between the thirty-odd miles lost by the delay of accident. The Pope entries were regular stock cars and not Vanderbilt Cup racers, as reported.

FAST TRACK WORK AT ST. PAUL.

ST. PAUL, MINN., June 29.—Ralph Mongini, driving a Matheson, won the 24-hour automobile race at Hamline track with 1,037 miles to his credit. Zerbies came second with 918 miles, Eddie Bald getting third place with 445 miles. Bald ran up the biggest mileage for one hour, covering fifty-four miles. On the previous day Eddie Bald won the 25-mile championship in 30:28. E. Simpson was second in 31:50, and Winston third in 31:56.

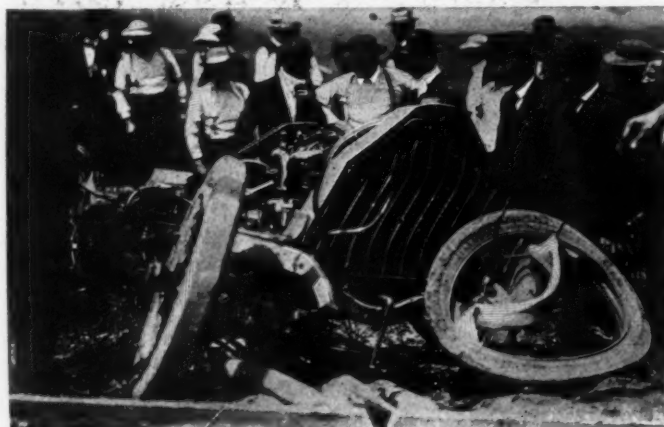


LYTLE IN POPE-TOLEDO TAKING DEADMAN'S CURVE.

AUTOISTS AVOID PASSING THROUGH POKEEP.

POUGHKEEPSIE, N. Y., July 2.—This city is fast achieving such a notorious reputation due to the pernicious activity of the local authorities in carrying the enforcement of the speed law to an absurd extent, that autoists generally are beginning to avoid the town on the banks of the Hudson, and with good reason. Since the opening of the touring season, trapping has been most active and fines have been imposed on the most flimsy pretexts. One of the familiar type, in which a rope arranged to be stretched across the road in front of an approaching car plays a prominent part, has been established at Hughsonville, about a mile south of Wappinger's Falls, while another one is in full blast about three miles north of the city, and it netted quite a bag of the returning competitors in the Albany Automobile Club's annual run a week or two ago. Not satisfied with working this game to the limit on the main road running north and south along the river, similar traps are also being started on the unimportant country roads leading in from the east, so that there is no avenue of approach to Poughkeepsie on which the autoist may feel safe from persecution.

Some idea of the absurd extent to which the enforcement of the law is being carried in the city itself may be had from the case of John Van Benschöten, who, with three of his drivers, was recently arrested, when showing the Georgetown 'varsity



WRECK OF LYTLE CAR CAUSED BY BURSTING TIRE.

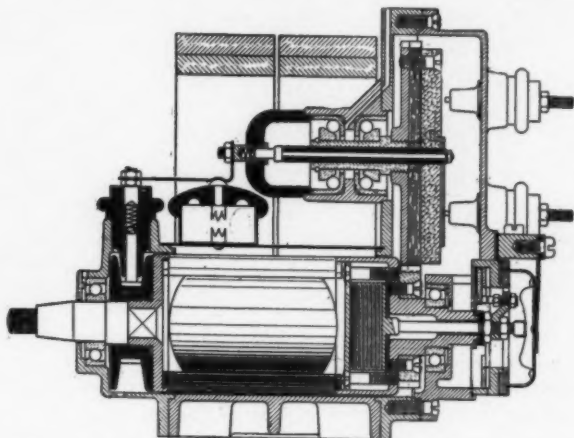
crew about, for having exceeded the legal limit of four miles an hour in rounding a corner. As the law stands there is some ambiguity, and hours have been spent in arguing whether the four-mile limit applies only to a car rounding a curve or not, one claiming that the situation in question is an intersecting highway, and the other that it is a sharp curve.

THE UBIQUITOUS MOBUS AND ITS MANY USES

LONDON, June 27.—The motor omnibus has found many spheres of usefulness during its short but energetic career, and its latest application is by no means the least promising. Mr. Charles Frohman is responsible for this recent idea, by which patrons who have booked seats for his theater are picked up at their residences by a special motor 'bus and quickly conveyed direct to the scene of their evening's enjoyment, the return at the close of the performance being made in the same convenient way. In the present initial stage of the experiment it is not found possible to serve the same districts on successive nights; accordingly at the time of booking seats information is given when the next 'bus will be in purchaser's neighborhood. If this does not suit the usual roundabout method of doing the journey must be resorted to. The innovation has aroused much attention, and even if the number of visitors conveyed in this way is comparatively small, the astute manager has secured the desired object in another way by booming his theater.

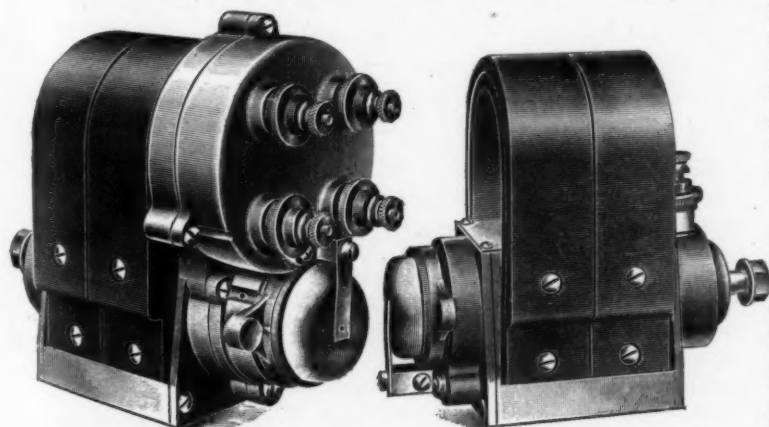
A NEW AMERICAN HIGH TENSION MAGNETO.

Under the title of the "Komet" the Dow Portable Electric Company of Braintree, Mass., has recently placed on the market a magneto of the true high-tension type, which, from the excellence of its electrical design and the painstaking care given to its construction, should make it an important factor in the ignition



SECTIONAL ELEVATION OF THE DOW HIGH-TENSION MAGNETO.

field in this country. The matter of employing only the very highest grade of materials throughout has also been given attention, a special class of imported steel being used in the manufacture of the field magnets. No attempt has been put forth to produce a revolutionary design, but the highest recognized standards of electrical and mechanical engineering have been followed in the construction of the machine. Both the primary and the secondary windings are placed on the armature of the generator, one end of the former being connected with the armature core, while the other is connected with a brass clip terminating in a stud. One end of the secondary winding is also grounded on the armature core, while the other is brought out to a revolving ring from which the current is collected by a spring-controlled carbon brush. The primary current is collected in the usual manner by means of



END VIEW HIGH-TENSION TYPE.

DOW LOW-TENSION TYPE.

a platinum tipped contact screw, resting against an interrupter spring which also carries a liberal-sized platinum point.

In this manner the primary winding of the armature remains short-circuited upon itself except at the points represented by the two elevations on the cam or interrupter disc, the space between the points not being more than $1/64$ inch, this being regulated by the platinum screw. Thus two of the current waves produced at each revolution of the armature are utilized, the current being conducted through a spring-controlled carbon brush to the distributor. The latter consists of a disc screwed to a pinion driven by another pinion of half the size on the armature shaft, so that the operation of current generation and distribution is

synchronous. The condenser, connected in parallel with the primary circuit in which the interrupter is located, is mounted at the distributor end of the magneto.

A safety spark gap is provided so that should any break occur in one of the high-tension leads the current will bridge this opening in the circuit without damaging any part of the generator. The latter must be run positively from the motor at the same speed as the crankshaft in the case of a four-cylinder motor, and at one and a half times the speed of the crankshaft for a six-cylinder motor. The timing of the spark is effected by causing the interruption of the primary circuit to occur sooner or later, which is readily accomplished by placing the armature at the position of maximum induction to correspond with the upper dead center or earliest point of firing of one of the pistons. To stop the motor, provision is made for short-circuiting the primary winding of the magneto by means of a switch mounted on the dash.

MORA SEALED BONNET CAR REACHES CHICAGO.

Not satisfied with having come through the original sealed bonnet contest of the Automobile Club of America with honors, one of the Mora cars, driven by W. H. Birdsall, left New York City on Monday, June 24, for Chicago with its original seals still intact in order to participate in the contest of the same kind held by the Chicago Automobile Club on June 28. In dropping off a bridge west of Utica a spring was broken, which necessitated a slow trip to the factory at Newark, New York, where it was replaced. The car arrived in Chicago on Thursday morning June 27, at 10 o'clock, or with almost twenty-four hours leeway to start in the contest next day, having been driven by Birdsall, John David and J. H. Stickney in turns and having covered a total of more than 1,800 miles without an adjustment since the seals were first placed on it.

SHOTGUN TACTICS NOT UPHOLD IN MICHIGAN.

LANSING, MICH., July 2.—Harry Kraft, a farmer of this place, has made a habit of carrying a loaded double-barrel shotgun with him since an automobile scared his horses, causing them to run away and ruin the buggy. He recently had an opportunity to make a display of the weapon when Louis Spice, driving a car, did not stop as quickly as he was commanded to do by the irate agriculturist. He aimed the gun at the auto party, and later decided to plead guilty to a technical charge of assault, on which he was let off with a fine of \$15 and \$8.50 costs. At this rate the shotgun will probably be left home in the future.

CLEAN SCORES NUMEROUS AT MILWAUKEE.

MILWAUKEE, WIS., July 1.—Fifteen perfect scores, five cars not completing the course and four penalized from 50 to 725 points, was the net result of the first annual reliability run of the Milwaukee Automobile Trade Association on Saturday, from Milwaukee to Madison and return. Road conditions were excellent and a few of the drivers who were unable to resist the incentive to speed were arrested. Perfect scores were gained by Buick, Wayne, Peerless, Kissel-Kar, Stoddard-Dayton, Mason, Rambler, Pope-Hartford, Premier, Winton, Buick and Reo.

SIXTY-ONE IN LOS ANGELES ENDURANCE.

LOS ANGELES, June 27.—Sixty-one automobiles of varying type and horsepower are speeding over 180 miles of diversified road between here and Lakeside. The occasion is the annual endurance run and economy test of the local Automobile Dealers' Association, and will require two days to decide. Starting from Eighteenth and Market streets this morning, Riverside, the noon control, was reached under a distressingly hot sun. Elsiene is the night control.

NEW PACKARD GARAGE IN NEW YORK.

One of the latest and most notable of the recent additions to New York's row of new garages is that of the Packard Motor Car Company on the northwest corner of Broadway and Sixty-first street, which is just having the finishing touches put on it.

The new Packard headquarters has a frontage of 114 feet on Broadway in the heart of the newest automobile row, and has a front of 196 feet on Sixty-first street. As the corner is less than a right angle, the north wall measures only 139 feet. The building rises to a height of four stories and has a deep basement.

The total cost of the building is approximately \$200,000. Except in the salesroom and offices, no attempt at ornamentation has been made, but every precaution known to building science has been taken to make the establishment proof against destruction by fire, and substantial construction and mechanical convenience have been striven for and secured. A steel skeleton supports the weight, and is encased in concrete walls and floors. The supporting steel columns are covered with cement, and no inflammable material is used except for window casings and, in the salesroom and offices, for wainscoting and furnishing. In the



PACKARD'S NEW ESTABLISHMENT ON AUTOMOBILE ROW.

basement is a 50,000 gallon reserve tank of water and on the roof is another of equal capacity, both connected with an automatic sprinkler system. A steam pump in the basement raises water to the roof. There is a low pressure steam heating plant in the basement, and the lighting throughout is by electric lights, so that there is no open flame. The gasoline storage is in a light court on the north side of the building outside of the building walls. Here a large number of tanks, each having a capacity of only one barrel, is embedded in cement. They have no opening to the air except by lead vent pipes rising above the roof of the building. Each is provided, of course, with filling and emptying pipes. Fire walls of brick separate the salesroom and offices from the garage portion of the first and mezzanine floors, and similar walls shut off the repair shop on the Broadway side of the third or top floor, corresponding with the fourth floor in other buildings, and also the stock room, tire room, coat room and other small rooms on the mezzanine or second floor. Fire doors, sheathed with copper, close automatically in case of fire.

All floors and the basement are connected by a pair of electric elevators on the west side of the building. Each of these measures 20 by 13 feet and is of five tons capacity. It is open at front and rear, so that a car can be run on at one end and off at the other on any floor. Directly in front of the elevators at each end on every floor but the mezzanine floor is a turntable 15 feet 4 inches in diameter. In the basement there is one turntable.

Of course, the show feature of the establishment is the salesroom. This extends across the full width of the Broadway front and has a large main entrance near the middle covered by an imposing metal canopy supported against the building. This is in

heavy iron and presents an effective contrast against the white front of the building. The show room has a depth of 84 feet on its longest side and a height of 28 feet, rising through two floors. Its area is broken by several fluted columns that support the ceiling. These columns and the sides of the room are paneled to a height of 8 feet with weathered oak, above which the walls are finished in imitation grained stone. Extending across the entire rear of the room is a mezzanine gallery 94 feet long by 20 feet wide, admittance to which is by a marble stairway at the middle. The stairway and balcony have an ornamental metal railing and the floor is covered with asbestolith. On this balcony the offices will be located. A passage from the gallery communicates with the mezzanine floor of the garage, where the directors' room, coat room, toilets, tire room and stock room are located.

Reception rooms for men and women are provided on the ground floor at the rear of the salesroom.

The whole of the second floor—above the mezzanine floor—is devoted to the storage of cars. It has a washing stand and on the north and west walls is a metal gallery for lockers.

The front of the top floor is occupied by the machine shop, which will be unusually large and well equipped. The rest of the floor is for car storage. Cement stairways, shut off by fire walls, extend through the full height of the building.

AUTOS PREVAIL OVER ROUGH ROADS.

Automobiles are superior to the roads they are given to traverse and the crying need of cross country travel is better highways. A good demonstration of the ability of autos to conquer roadstead difficulties was made last week by S. D. Waldon, sales manager of the Packard Motor Car Co., of Detroit, who, driving a 1908 Packard "30" test car, with a load of four persons and heavy baggage, came from Detroit to New York in two days, despite heavy rains and a succession of innumerable miles of torn-up and almost impassable roads.

The start was made from Windsor, Ontario, at 4:25 Monday morning. Windsor, by the way, is a peculiar place. There is no garage and no livery stable will take an automobile. The car was left standing in the street before a hotel during a heavy rain Sunday night.

Monday's course lay through Canada to Buffalo by way of London and Hamilton. The road during the morning was deep with mud. Near Niagara Falls a stop to fix a rear tire blow-out resulted in car and party going into receivership, the receiver being a country constable with a tin badge and blue pants. Some one in St. Davids had telephoned ahead that a certain car had exceeded the fifteen-mile speed limit of that village, and upon this absent evidence the Packard party was haled before the magistrate, chief of police, et cetera, of Niagara Falls, and mulcted \$25 and costs. This delay, on top of the puncture and the customs proceedings at the bridge, lost over two hours.

No stop was made at Buffalo, but about half way between there and Rochester a veritable cloudburst drove the tourists into a friendly barn for half an hour. Then, with tire chains on, a slippery way was made into Rochester.

The second day was like driving across a newly-plowed field as wide as New York State. Being in a hurry to spend the State road improvement appropriation, supervisors everywhere had plowed up the highways preparatory to laying stone roads.

By persevering going, however, the smooth road between Poughkeepsie and New York was reached before dark and the rest of the run was a quiet glide down to Manhattan.

In speaking of the trip Mr. Waldon said that the most remarkable point seems to be that if a car could traverse 797 miles of such varying and mostly poor roads in two days it showed a traveling possibility of which the public seems hardly to be aware. He concluded:

"Give us roads like some of the stretches along the Hudson, all the way from New York to Detroit or Chicago, and automobiles will develop a new mode of travel which will be simply amazing in its extent. Autos are good. We need good roads."



AMERICAN ROADS BETWEEN TWO IMPORTANT CITIES.

This photograph gives some idea of the class of roads encountered between the two important middle western cities of Toledo and Detroit. It was taken directly in front of the post-office of one of the villages on the route some weeks ago. The road has improved materially since, but it is almost impassable during the winter and early spring months owing to the rains.

AUTO STAGES ONCE MORE TO THE FORE.

SEATTLE, WASH., June 30.—Within a short time there will be a regular automobile stage service between Kirkland and Fall City, arrangements for the inauguration of the line already having been made by a number of business men in the former place where a garage is now being built to house the machines. As a starter a 30-horsepower gasoline 'bus with a seating capacity of twenty people will be put on.

TORONTO, ONT., July 1.—Under the Dominion charter recently granted a newly incorporated company, a 'bus line will be inaugurated in this city during the coming week. The first part of the equipment, consisting of five electric 'buses built by the Autocar Equipment Company, Buffalo, N. Y., has just been delivered here and will be put into service within a few days. The 'buses will be run on the Belt Line, along King street, up Jarvis to Bloor, along the latter to St. George, returning by way of Beverly and Queen streets to King. Four horse-drawn stage coaches have also been acquired, and it is expected that the equipment will have a capacity of half a million passengers annually. Similar systems will also be operated in Montreal and Ottawa.

FOR A NEW AMERICAN ANNUAL TOURING EVENT.

A. W. Church, of Wyckoff, Church & Partridge, has just come forward with a proposal to inaugurate another American touring event, for which he will offer a handsome trophy. Realizing the necessity for preparing an intelligent set of rules well in advance, the matter of formulating these has been taken up and it is expected to make them public early in August. The route has already been decided upon and will consist of a circuit of several hundred miles, starting and finishing at New York, via Hartford, Conn., Boston, Mass., Concord, N. H., Albany, N. Y., Columbus, O., Charleston, W. Va., Richmond, Va., Washington, D. C., Harrisburg, Pa., and Trenton, N. J. Each of these cities being the capital of its State, arrangements will be made to have the party of tourists meet the governor, presenting to him a complete report of the roads passed over in his jurisdiction, thus furthering the good roads movement at the same time. No date has been set for the starting of the event, but it will be held as early in the year as road conditions will warrant and the schedule will be such as to allow ample time for rest at each of the stopping places mentioned. Designs are being prepared for the trophy, which is promised to be as fine an example of the goldsmith's art as can be produced.

BALDWIN AIRSHIP'S SUCCESSFUL FLIGHTS.

HAMMONDSPORT, N. Y., July 1.—Capt. Thomas S. Baldwin made two very successful flights in his "Twentieth Century" airship at Hammondsport, N. Y., June 27. The first ascension was made with a single propeller and the second with a double propeller, driven by the G. H. Curtiss four-cylinder motor. The ship has a cigar-shaped gas bag, 57 feet long and 17 feet in diameter, built of balloon silk and covered with netting. The bag has a capacity of 9,000 cubic feet, and is filled with hydrogen gas. The car is 42 feet over all and 3 feet deep. The motor is a four-cylinder, air-cooled, 16-horsepower machine designed especially for this work. The ascensions were made from the factory of the G. H. Curtiss Manufacturing Company.

The Curtiss Company is also making a motor for Capt. William Mattery, of the Chicago Airship Company, to be eight cylinder and of 32 horsepower. Another 8-cylinder 32-horsepower motor is being built for Mr. Williams, inventor of the Williams typewriter, for a "heavier-than-air" airship. The firm also sold the United States Government four airship motors recently.

INTEREST HIGH IN COMING ATLANTIC CITY MEET.

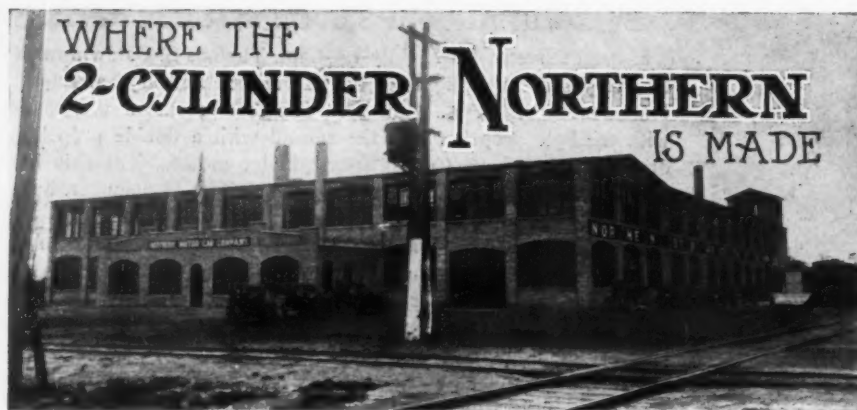
Sixteen events, two of the championship order, have been arranged for the coming Atlantic City meet which will be held on two days in August, the 5th and 6th, and considerable interest is already being shown in the holding of the meet.

The Atlantic City Automobile Club has already announced the details of the week's program, which is to consist of two days racing on Ventnor Beach, Monday and Tuesday, August 5 and 6, followed by a grand floral parade on Wednesday, the route lying along the seven miles of asphalt on Pacific avenue with the grandstand and judges' box at the City Park. This parade is to be one of the chief features of the carnival, and preparations are being made for it on an elaborate scale, handsome prizes for the winners in each class having been donated by the carnival association and local business houses. The week will end with a three days' automobile show.

The racing will be held under the auspices of the local club, which has invited the following well-known autoists to act as the officials of the meet: Honorary referee, Jefferson De Mont Thompson, chairman of the A. A. A. racing board; referee, A. R. Pardington; judges, Raymond Healey, A. G. Batchelder and Alfred Reeves; starter and clerk of the course, F. J. Wagner; assistant starter, David J. Barrett.



THE PRINCESS OF WALES ALIGHTING FROM LORD BLYTHEWOOD'S WHITE STEAMER IN LONDON.



EXTERIOR VIEW OF THE NORTHERN PLANT AT PORT HURON, MICH.

TO anyone not intimately connected with the automobile industry in this country it is extremely difficult if not altogether impossible to form any adequate idea of its extent, and as for looking into the future, even such a short period as half a decade, with a view to gauging its probable expansion in that time, this is something that is beyond even the most expert. Statistics are impressive, to be sure, and appalling rows and columns of figures with their endless ciphers look just as imposing as the most ardent advocate of home industry could possibly wish, but after all they are a meaningless array of numerals that convey little if any definite idea to the casual reader, who generally passes them by with hardly more than a glance.

Pictures speak a far more telling language than do either figures or description, and in this connection the photographs of one of the Northern Motor Car Company's plants, located at Port Huron, Mich., are interesting. This particular plant represents a recent expansive move on the part of the builders of the Northern, whose main works are located at Detroit. In consequence, the new addition is devoted solely to the production of the Northern light cars—the two-cylinder type which have been specialized by this firm for several years. The plant, which is remarkably complete and furnished with the most modern equipment throughout, is in charge of W. H. Hutton, Jr., and during the manufacturing season just past has averaged a weekly production of fourteen cars, which is still being maintained. The photographs show the exterior of the main building, together with a number of the cars in the process of being tried out, also a view down one of the lines of lathes in the machine shop and a corner of the chassis assembling room.

The devotion of an entire plant to the production of but one model, turned out by a firm of builders, is a typical instance of the extent to which specialization is being carried in this field by the American automobile manufacturer, the Northern Motor Car

Company using its original plant at Detroit entirely for the building of the four-cylinder cars made under this name. Such an arrangement facilitates production by confining the attention of the working force in each plant to the requirements of but one type of car, so that all confusion is avoided and it is easier to closely maintain a prearranged system of manufacture throughout every department.

COL. SPRAGUE TO CELEBRATE.

NORWALK, O., July 1.—Everyone knows Colonel Sprague, the man who makes automobile tops, and by this time everyone in the trade knows that he is going to celebrate the glorious Fourth next Thursday afternoon, for the invitations to come and make merry have been spread broadcast. No details are given, but a good time is promised to everyone who can come, the program calling for a change of performance every ten minutes, and as the invitation, which is in the shape of a flag ornamented cannon-cracker, reads, "there will not be a minute but that you can be in it," so that it is safe to say that anyone who happens to be in Norwalk on the Fourth will have occasion to remember it.

A. L. A. M. PRODUCES A TECHNICAL DIGEST.

Running on the familiar lines of certain literary journals, the "Digest of Current Technical Literature," the first number of which has just come forth under the seal of the Association of Licensed Automobile Manufacturers, presents a résumé of the contents of a number of the technical journals of America and England. According to the introduction of the weekly, of which Coker F. Clarkson has undertaken the editorship, "the Digest is primarily for the use of A.L.A.M. engineers, being intended to furnish in brief form a résumé of what is new or worthy in automobile design and construction." Clippings from journals published in foreign languages are promised in future numbers.

FRENZIED FINANCIER BUYS WHITE STEAMER.

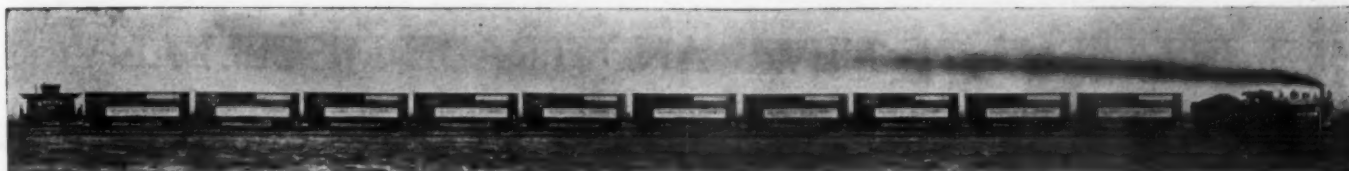
BOSTON, July 2.—Thomas W. Lawson, of frenzied finance fame, who has long been known for his devotion to the horse, has at last succumbed to the charms of the automobile. During his last trip abroad, from which he has just returned, Mr. Lawson did considerable touring in a Mercedes through Italy, and made the run from Nice to Paris in a Mors, whence the order for the White, which is the first car he has owned. In contrast with its name, it is painted a dead black, and is said to be the only car of its color in this city. The car will be used principally for carrying its owner between Dreamworld and his Boston office.



LONG LINES OF LATHES IN THE MACHINE DEPARTMENT.



CHASSIS-ASSEMBLING ROOM AT THE NORTHERN PLANT.



RECORD-BREAKING SHIPMENT OF ELECTRICS SENT FROM THE COLUMBUS BUGGY COMPANY TO A. V. HART, ROCHESTER, NEW YORK.

"BUGGYMOBILE" SCORES A BIG SUCCESS.

When a concern of the size of the Columbus Buggy Company, Columbus, Ohio, takes up the investigation of a thing some interesting and hitherto unrealized facts are likely to be brought to light. C. D. Firestone, the president of the company, sees a large future for the popular-priced automobile—the horseless carriage of the farmer—and the production of the latter is to be undertaken on the same generous scale that has characterized the making of horse-drawn vehicles by this firm for a number of years past. The designer of the new "Buggymobile," as it has been christened, is C. C. Bramwell, who, with his assistant, gave one of the cars a five-day try-out last week. The home stretch of the run, from Indianapolis to Columbus, a distance of 200 miles, was made in the excellent running time of 14 hours 17 minutes, on a consumption of but eight gallons of gasoline and three pints of lubricating oil, despite the fact that the car was kept travelling through thunderstorms that almost amounted to cloudbursts, and the roads were in very bad condition as the result.

The power plant of the new buggymobile consists of a ten-horsepower two-cylinder horizontal-opposed engine of the air-cooled type, which weighs a trifle less than 220 pounds with all its accessories, while the car in complete running order only tips the scales at 700 pounds, so that the proportion of power to weight is very high and easily accounts for its ability to make thirty miles an hour over poor roads. Final drive is by side ropes, controlled by a hand lever, and the cars are equipped with either phaeton or Stanhope bodies, to sell at \$750. That the builders have every confidence in the ability of their production is shown by the fact that they have entered a Buggymobile in the A. A. A. tour, where it will have to compete with some of the highest-priced cars built, and its performance will be watched with considerable interest.

POPE-TOLEDO WINS DISPLACEMENT HANDICAP.

CLEVELAND, O., July 1.—On the occasion of the recent Stucky hill climb, held under the auspices of the Cleveland Automobile Club, it was prematurely announced by the daily papers that Campbell, driving the Darracq, was the special event winner, while a later report of the committee's figuring showed the Stoddard-Dayton to have gained the honor. The event was known as a piston displacement handicap, and it evidently took a great deal longer to figure the relative standing of the cars than it did to run the race, as it is now formally announced that there was an error in the former computation, and that the Pope-Toledo, driven by J. P. Grady, was the winner by a safe margin.

CROSS COUNTRY RUN OF THE BLUE-STREAK.

For the double purpose of proving the reliability and efficiency of the 20-24-horsepower air-cooled motor forming the power plant of the Logan Blue-Streak, as well as to demonstrate the strength and running qualities of the car under high pressure, so to speak, B. A. Gramm, vice-president and general manager of the Logan Construction Company, Chillicothe, O., accompanied by a mechanic, left Toledo on Monday morning, June 24, at 5 A. M., bound for Plymouth, O., the route thus constituting a run across the State of Ohio from Lake Erie on the north to the Ohio River on the south. The car used for the run was taken directly from stock without any special preparation in the way of tuning up and had been sent to Toledo, O., over the roads two days previous, the driver then reporting the latter to be in very poor condition, which was made far worse by continued rains during the day previous to the start.

No attempt was made to spare the car in any way, and despite the extremely bad state of the roads excellent time was made, the first stretch of 32 miles to Bowling Green being covered in 50 minutes, while the total elapsed time for the distance of 252 miles was made in less than 14 hours, stops having been made at eight different towns. A remarkable feature of the run, considering the nature of the going, was the small gasoline consumption, which only totaled eleven gallons. Immediately upon its arrival at Plymouth it was again sent over the road back to Chillicothe, an additional 50 miles, all of which was covered without the necessity for touching a bolt or nut or making the most minor adjustments. The amount of mud encountered throughout the run was so great that the car was literally buried under two or three inches of it and could scarcely be recognized, even by those most familiar with its appearance.

OLDSMOBILE PERFORMS STRENUOUS TEST.

BOSTON, July 2.—In addition to setting up a new track record for 100 miles at Readville on Memorial Day, the Oldsmobile which then carried off the honors was put through a far more strenuous test last week. Driven by A. E. Morrison, the local agent, and with Arthur Adams and Fred Allen in the car, a start was made from here on Wednesday afternoon. New York was reached Thursday morning, and after a stop of but a few minutes the return trip was undertaken, reaching Boston late the same night. The engine ran constantly for thirty-one hours, covering a distance of 500 miles during the entire running of which both the high gear and the bonnet were sealed.



POPE-TOLEDO TESTING CREWS STARTING FROM THE FACTORY FOR THEIR DAY'S WORK.

BRIEF ITEMS OF NEWS AND TRADE MISCELLANY

A new factory, 80x400 feet, is being erected by the Simplex Motor Car Company, of Mishawaka, Ind. It is expected to be ready in two months.

A 50-horsepower Matheson touring car has been shipped to Raton, New Mexico, for H. A. Ensign, of New York, by J. M. Quinby & Co., of Newark, N. J.

Particulars from abroad show that the first four cars to finish in the German Emperor's cup race were equipped with Trufault-Hartford shock absorbers. They included the winning Fiat, the Pipe and the two Opels.

Orders for one or more cars have been received by the Brush Runabout Company, Detroit, Mich., from every continent, including Europe, Asia, Africa, Oceania, North and South America. The first shipment was made this week.

An increase in the capital stock of the General Accumulator and Battery Company, of Milwaukee, Wis., is being contemplated, and negotiations are pending with a view to contracting for the sale of the entire output for the balance of year.

Two reasons are advanced by the general selling agents for the Genesee tires (the Thomas D. Buick Company, of Flint, Mich.) for the exceptional favor with which the tires have been received by automobilists. One reason given is the plan of selling the tire direct from the factory to the owner, eliminating the middleman's profits, and the other the 5,000-mile guarantee.

New York State registrations for the month of June show that the past thirty days have constituted another record-breaking month, the figures received by the American Motor Car Manufacturers' Association showing that 2,039 cars were enrolled. Of these the Ford again leads with a total of 243, the Cadillac being next with 147 and the Maxwell third with 132.

Departing from its policy of confining the sales of its cars to the neighboring territory, though as a matter of fact many Gaeth cars have been sold outside of Cleveland, the Gaeth Automobile Company has recently placed an agency with the Chicago Garage Company. R. E. Hawkins, a Gaeth owner, has also been appointed sales agent in Cleveland for the car.

Since the amalgamation of the Ajax Tire Makers with the Grieb Rubber Company, and the announcement of Horace DeLisser, president of the company, that a new location was decided upon, numerous efforts have been made by other cities to secure the plant. The company owns its own plant in Trenton, and has a piece of property 350x450 feet alongside the railroad tracks. Announcement of the new location may be expected within a couple of weeks.

In view of the uncertainty of the 1907 Vanderbilt cup race, the Locomobile Company of America is not building a new racing car. This, however, does not mean that the Locomobile will not be a contender in any big road race held this year, because the two racing cars which Joe Tracy had at the Vanderbilt cup course last fall are available. One was the winner of the Elimination and the other, driven by Tracy, made the fastest lap in the race.

The Mora Motor Company, of Newark, New York, has just awarded the contract for the erection of the main building of their new factory to the Voshall-Percy Construction Company, of Rochester. The structure will measure 60x400 feet, a portion of it being two stories high and the remainder three stories. It will cost about \$60,000, and is the first of a series of buildings which the Mora Company will erect at Newark for turning out its cars.

Under the title of the F. N. Motor Club of America, a unique organization has just come into being in New York City, with headquarters at 2208 Broadway. The officers are: President, David Dessau; vice president, Hiram Powers; treasurer, F. V. Littlefield, and secretary, Erik J. Peil. As its name indicates, the membership of the new club is confined entirely to riders of the F. N. four-cylinder motorcycle, weekly runs being held from the club's headquarters every Sunday.

George C. Tyler, Booth Tarkington, and Henry Leon Wilson, now touring Europe on a 45-horsepower Renault, landed the first automobile ever seen in Christiania. Three thousand dollars duty was at first demanded, but finally the machine was allowed to go free, preceded by three policemen to prevent any faster speed than a walk. Telegraph messages had to be sent ahead to arrange a supply of gasoline on the route, and, there being no trains in Central Norway, most of it had to be sent up by boat. It took a week to cover 500 miles. Frequently Norwegian peasants dropped on their knees on catching sight of the automobile.

"The sale of automobiles by letter or catalogue is productive of no results in the Netherlands," says information received from Holland by the American Motor Car Manufacturers' Association. The dispatch states that American cars are little known in Holland, and importers are overflowed with catalogues sent from America. A prominent Amsterdam physician who was attending a recent automobile exhibition in that city asked if motor cars were made in the United States. The A. M. C. M. A. has strongly urged its members to open agencies in this European territory. Ten years ago this was an excellent territory for the American bicycle.

RECENT BUSINESS CHANGES.

The Breeze Carbureter Company, of Newark, N. J., has recently been organized to take over the business of the Breeze Motor Manufacturing Company, and will remove from 28 Main street to 276 Halsey street.

Sports, Limited, has just moved from its old quarters, at Fifty-seventh street and Broadway, to a larger establishment at 2049 Broadway, near Seventy-first street, in the heart of automobile row. This concern, of which John Bogan is the manager, handles the new Royal motorcycle, also the R-S. motorcycle, in addition to a large line of automobile and motorcycle supplies and sporting goods generally.

NEW AGENCIES ESTABLISHED.

A contract has been made by George K. Wheeler, sales manager of the Columbus Buggy Company, for the exclusive sale of

their Columbus electrics in Porto Rico to Robert Graham, of Ponce.

The Thomas D. Buick Company, of Flint, Mich., general sales agents for the Genesee tires, has opened a branch house in Chicago, at 87-89 Ashland boulevard, near Madison street. L. F. Burges has been appointed branch manager.

An agency for the Mitchell automobile has been opened in Milwaukee, Wis., by Brown & Friend, of Chicago, Ill. The McDuffie garage, on Wisconsin street, has been rented, but will be removed to 148 Eighth street as soon as the new building under construction is ready.

PERSONAL TRADE MENTION.

E. W. Swanbrough, for several years in the automobile business in Denver, has become general manager of the Pacific Coast Automobile Company, Seattle, succeeding C. Z. Salling, who retires because of ill health.

Gaston Rheims, of the C. G. V. Import Company, sailed for France on Thursday in order to arrange for a complete exhibit of this make to be shown at the Importers' Salon, in Madison Square Garden, at the end of next December.

E. E. Allyne, of the Allyne Brass Foundry Company, of Cleveland, Buffalo and Detroit, has gone to Germany, France and England to investigate foreign foundry practices and a new process of melting aluminum. He expects to return in August.

Chester Clark Boynton resigned as secretary and general manager of the Franco-American Auto Supply Company, 1404-1406 Michigan avenue, Chicago, June 1, to take charge of the entire automobile accessory business of the Excelsior Supply Company, 233-237 Randolph street, Chicago. Mr. Boynton assumed his new duties July 1.

NEW TRADE PUBLICATIONS.

Blomstrom "30" automobiles are presented to the public in an illustrated catalogue just issued. Illustrations of the runabout and touring car models, as well as of the engine and transmission, are given. The catalogue can be obtained from the Blomstrom Manufacturing Company, Detroit.

"Automobile Comfort" forms the title of a 16-page booklet sent out from the Ventilated Cushion & Spring Company's headquarters, at Chicago, descriptive of their rough-riding springs. Artistically the book is worthy of attention, and the question of springs is of considerable interest.

"Decidedly Useful" is the verdict which must be passed on the vulcanizer instruction booklet issued by the Auto Improvement Company, of 2128 Broadway, New York City. The explicit instructions and wealth of illustrations should enable any intelligent person to carry out tire repairs with the vulcanizer and tools supplied by this firm.

Something about the dust problem is related in a dainty brochure issued by the Barrett Manufacturing Company, of New York, being in large part an extract from an address by J. W. Howard before the American Road-makers' Association. The booklet sets forth the advantages of Tarvia, the dust layer, and gives particulars of tests made in various parts of Europe and America.

INFORMATION FOR AUTO USERS.

Diamond M Cement and Solution.—

Sending a shoe or an inner tube to the repair shop every time it suffers the slightest puncture is not alone highly inconvenient, but very expensive—more so than the average autoist likes it to be when he comes to figure up the total expenditure on this account alone at the end of a season's running.



DIAMOND M TIRE REPAIR OUTFIT.

To avoid the necessity of this Charles E. Miller, 97-99-101 Reade street, New York—the man who handles everything under the sun for the autoist except the complete automobile—has put a special repair kit on the market. It is known as Diamond M Vulcanizing Substitute, and is a cold process, only requiring a cement and curing acid, the complete kit consisting of $\frac{1}{4}$ pint of each, with a cement and an acid brush, in a neat containing case. The repair is simply made and produces the same effect as vulcanizing, the acid curing the cement to the rubber, thus making the patch integral and permanent. The Diamond M cement and acid cure solution is also put up in various sizes, ranging from half a pint to a gallon, and may be had from the Miller headquarters in New York or any of the branch stores, located in Cleveland, Detroit, Buffalo, Boston and Philadelphia.

New Winchester Speedometer.—

In order to meet the demand for an accurate speed and distance recording instrument at a lower price, the Winchester Speedometer Company, Motor Mart, New York City, have recently introduced a new model of their well-known instrument, to



NEW MODEL WINCHESTER SPEEDOMETER.

sell at \$50 complete. Neither the mechanism, material nor workmanship has been changed, and the new instrument incorporates every feature distinguishing the highest priced ones. The sole change consists in the substitution of a smaller odometer—about a third less in size—with a corre-

sponding reduction in the price. The high-speed record hand, showing the maximum speed attained, has also been incorporated in the new model. This auxiliary hand, which is a bright red to distinguish it, is carried by the regular indicating hand to the point representing the highest speed attained, and remains there until released by the touch of a button, when it flies back to the speed that the car is then making, or to zero if the latter be stopped. The new Winchester registers speeds up to 60 miles an hour, maximum speed attained and trip and season mileages.

Advance Coil Current Indicators.—

There is nothing that gets so much abuse at the hands of the average autoist as the battery, and next to it comes the coil. In fact, the former is abused on account of the shortcomings of the latter, and the reason lying at the foundation of it all, in the great majority of instances, is the fact that most coils are adjusted by guess-work, or by the sound of the trembler, which is the same thing. To avoid this the Eldredge Electric Manufacturing Company, Spring-

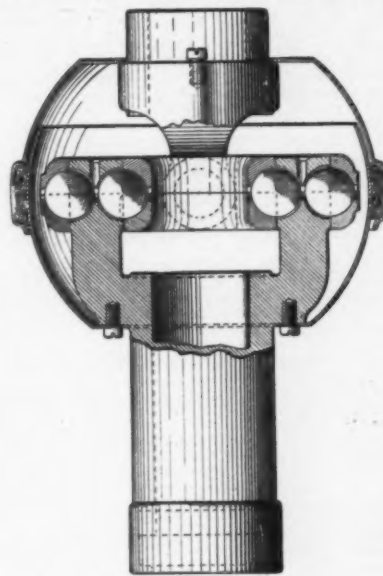


ADVANCE SPARK COIL CURRENT METER.

field, Mass., have brought out the Advance Spark Coil Indicator, for measuring the amount of current consumed by the coil—a service which the ordinary ammeter does not perform satisfactorily. As no coil should ever consume more than two amperes, no matter how poorly it is working, this is the maximum marked on the scale, the calibration being by tenths of an ampere. For convenience in using, the instrument may be connected to the usual switch by means of the double connecting cord furnished, or it may be connected at any point in series with the battery and primary of the coil to be tested. Most coils work best on less than an ampere of current, usually six to nine tenths of an ampere, and a properly adjusted coil means long-lived batteries and troubleless contact points, so that the initial cost of the instrument will be saved several times over in the course of a single season.

K-B Universal Joints.—One of the chief essentials of the transmission of the power on a shaft-driven car consists of a good universal joint, and nothing has served to bring about improvement in this relatively small part of the make-up of the automobile so much as the general adoption of the propeller-shaft drive. The Kinsler-Bennett Company, Inc., Hartford, Conn., who are specialists in this field, have recently brought out a new form of ball-

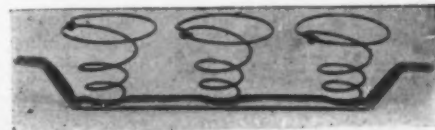
bearing universal joint, which is claimed to have so many points of superiority over most existing forms as to be entirely in a class by itself. As will be plain from the illustrations, this new joint consists of two



SEMI-SECTION VIEW K-B JOINT

plates and two forks, each of the latter having recessed ball seats, with corresponding seats in the plates for receiving the balls between them. All parts are made from drop forgings, and the balls are of the highest grade. Four bolts for holding the parts together and a dust-proof shield, which also serves to retain the necessary lubricant, complete the joint, which may be easily dismantled and reassembled in a few minutes. Each bearing is well provided with oil grooves and vents, so that a single filling of the cover is good for 12,000 miles, or more than the ordinary season's running. Several months were occupied in preparing tools, fixtures and gauges for the manufacture of these universal joints, so that all parts are guaranteed to be interchangeable.

Cardinal Spring Construction.—Absolute perfection is hard to attain, and the makers of this patented form of spring construction for automobile upholstery—the Barber Manufacturing Company, Anderson, Ind., do not claim that they have achieved it, but that their springs give absolute satisfaction, which, in the end, is the same thing. As will be apparent from the illustrations, showing the manner in which the



CARDINAL METHOD OF SPRING ASSEMBLY.

spirals are assembled and held is radically different from the usual type, but also permits of assembling the springs of a cushion in a fraction of the time ordinarily necessary, the base of the spiral is so constructed as to render it impossible for the ring to come in contact with the bar, thus making it noiseless and adding to the capacity of the spring, while the fact that the bars are tempered steel arches and all spirals are made from a high-grade of spiral wire, re-tempered, insures long life under the most severe service.

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The Safest Way to Store Gasoline

is the NATIONAL way, is the only economical, safe and convenient way, because there is no danger, no evaporation or waste, the gasoline is in the tank or in the car.

The NATIONAL is the only pump that discharges gasoline at every movement of the crank, it saves one half the labor and one half the time to pump gasoline, there is no evaporation or leakage, the tank is buried underground, the pump may be put in the building in a convenient place. It is the safest way because it meets all of the requirements of The National Board of Fire Underwriters.

The NATIONAL is also adapted to private motorist, also for lubricating oil storage.

Ask for catalogue, it will explain all about the National System.

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SPECIAL NOTICES

Advertisements inserted under this heading at 20 cents per line; about 7 words make a line. Remittance should accompany copy. Replies forwarded if postage is furnished.

Cars For Sale

AUTOMOBILE FOR SALE—New, \$2,500 water-cooled, 5-passenger car; 32-h.p. Beaver engine, good reason for selling; guaranteed by manufacturer; no reasonable offer rejected. For particulars address Beaver, care The Automobile, New York.

BUICK TOURING CAR—Fine condition; might take runabout or car of less power in trade. 426 Union Ave., Bridgeport, Conn.

CADILLAC—Light, side entrance touring car, with extra runabout body; overhauled and repainted. Address Opportunity, care The Automobile.

CHADWICK 1907 cars are all sold. We want to clean up for 1908 business, and offer the following at prices which should sell them at once: 1906 Chadwick, 50-h.p., brand new; 1906 Chadwick, 50-h.p., refinished like new; both cars guaranteed one year; one Panhard 30-passenger wagonette; one 24-h.p. Locomobile. Chadwick Engineering Works, Spring Garden and 32d Sts., Philadelphia, Pa.

GET WISE—We have anything you want in second-hand cars—Packard, Winton, Locomobiles, White steamers, Franklins, Buicks, Oldsmobiles—and bargains at that. Get our list for March. The 81d Black Automobile Co., 630 Walnut St., Cincinnati, Ohio.

GREATEST BARGAINS in used automobiles ever offered in this country; 100 different styles. Tell us about what you want and we will send you descriptive matter. G. A. Coey & Co., 1424 Michigan Ave., Chicago, Ill.

HAYNES—40-h.p., Model K., 1906; I have two; \$1,350. Charles E. Pelton, Lowville, New York.

MARMON MODEL D—1906; air-cooled; 30-h.p.; Rushmore lights, Sprague top, speedometer, 3 extra tires; machine just overhauled under owner's supervision; in excellent condition; price asked, \$2,000; cost \$3,300. E. H. Bancker, 92 Third St., Brooklyn, N. Y.

OLDSMOBILE—In fine shape; top and all accessories; \$225. Geo. S. Dales, Akron, Ohio.

PACKARDS, Reos, Cadillacs, Fords, Toledos, Maxwells, Locomobiles, Olds, Knox, Wayne, Franklin, Autocar, Pope-Hartfords, Yale, Peerless, Thomas, Buicks, Winton, Pierce, National and many others; every one a bargain and you get a square deal. The Starin Company, 1094-1100 Main St., at St. Paul St., Buffalo, N. Y.

PIERCE STANHOPE—6½-h.p., with leather top; entire car, including tires, in perfect condition; price \$200. Meech & Stoddard, Inc., Middletown, Conn.

POPE-TOLEDO—35-h.p. touring car; good condition; side entrance; used two seasons; cost, new, \$4,000; price reasonable. N. N. Hill, East Hampton, Conn.

POPE-TOLEDO—1905, 35-h.p., for sale; has folding top, with storm curtains, French glass wind shield, Hartford suspensions, Gabriel horn and 8-day clock; tires in excellent shape; demonstration on request. Mr. Covell, Central Park West and 110th St., New York.

RAMBLER—16-h.p. touring car, good as new; '04 model, full equipped; \$450. F. W. Jackson, Holland, Mich.

RAMBLER TOURING CAR—Five-passenger; splendid condition; canopy top, glass front, and side baskets; \$500 cash. Speed Changing Pulley Co., Indianapolis, Ind.

ROYAL TOURIST—1906; gas and side lamps, speedometer, recently repainted; in first-class order. 724 E. & B. Bldg., Rochester, N. Y.

RUNABOUT—1907, high powered, for sale; cost \$3,750, sell for \$2,750; perfect condition; run only 3,000 miles. McCaffery, Mors Garage, Broadway and 54th St., New York City.

STEVENS-DURYEA—Model R, 1906 touring car; new Aug. 1; owner has bought 6-cylinder, same make. Box 1483, Springfield, Mass.

STEVENS-DURYEA—Three second-hand, 2-cylinder runabouts, \$650 to \$900; three second-hand 4-cylinder Stevens-Duryea touring cars, \$1,500 to \$2,000; all these cars thoroughly overhauled by factory experts and are in first-class condition; they were taken in trade for new models. R. R. Kimball, 2026 Farnam St., Omaha, Neb.

TRUCK—One 6-cylinder for sale; 35-h.p., 2½-ton truck, body to suit, price \$2,000, fine new job; also one 11-passenger pleasure car, 4 individual seats, 7 in tonneau, 25-h.p. opposed engine, everything new and first-class, price \$2,000, top and curtains. Watrous Auto Works, Elmira, N. Y.

WINTON, MODEL K—1906 Model, 30-h.p., like new; fully equipped; top; guaranteed perfect; to close quickly, price \$1,100. H. O. Koller, 26 S. Fifth St., Reading, Pa.

WINTON, MODEL M—1907, new 40-h.p., with top, lamps, etc., cost \$3,725; will sacrifice for \$3,000 cash; can inspect at Winton Garage, 70th and Broadway, or inquire C. Thorne, 30 Pine St., New York.

WHITE STEAMER—Brand new 1907 model, for sale at a bargain. Address E. S. Youse, Reading, Pa.

WHITE STEAMER—1905 model, with 1906 burner, 1907 pumps, new thermostat; driven 4,000 miles; now being assembled after a thorough overhauling by the owner; if in the market for a White car, it will pay you to investigate further. H. W. Beach, Montrose, Pa.

WHITE TOURING CAR for sale; 1907 Model H; color, maroon; has black pantasote cape top, acetylene lamps, extra shoe, two tubes, tire holders, Warner speedometer and full equipment of tools; car in excellent condition; run about 1,500 miles. Demonstrations by applying to Peerless Motor Car Co. of New England, 178 Columbus Ave., Boston.

WHY auto prices vary at different places—The small dealer has to make expenses and profits off a few sales; he is compelled to ask high prices; those who buy to sell again naturally rush up the selling figures; with us selling on 5 per cent. commission, with no charge for storage, necessitates the sale of a car almost as soon as it is consigned to us; to sell quick, prices must be low, and this is why our selling figures are from \$200 to \$800 less than others ask. Tom-neaus and touring cars; Panhard, 4-cylinder, semi-limousine, \$1,250; Packard, 4-cylinder tonneau, \$1,000; Fiat, 4-cylinder, \$2,000; Corbin, 4-cylinder, \$1,000; Aerocar, 4-cylinder, \$1,500; Buick, \$650; Reo, \$575; Yale, \$550; Thomas, 50-h.p., \$1,250; Locomobile, 4-cylinder, \$1,250; Wayne, 50-h.p., \$1,600; Pope-Toledo, 4-cylinder, \$1,800; White steamer, \$700. Most of the above cars have tops, horns and full lamp equipments. Runabouts and electricies; Decauville, 4-cylinder, practically new, \$950; Decauville, 2-cylinder, \$350; Duryea, \$500; Knox, \$300; Pierce-Arrow, \$300; Crestmobile, \$275; Buckmobile, \$350; in electricies we have very handsome broughams, \$950; stylish Cabriolet, \$750; Baker runabout, \$350; Ajax, \$250. Other tonneaus \$250 up, and runabouts \$150 up. To secure extra low prices make bid on the car you like; if the owner is especially hard pressed for cash, he is likely to accept your offer. Manhattan Storage Co., Largest Auto Dealers in the

World, 334-340 W. 44th St., two blocks from 42d St. station 9th Ave. "L"; three blocks from Broadway, New York City.

YALE TOURING CAR for sale; big bargain; in first-class shape, newly painted, good tires, thoroughly overhauled, top, with storm shield of glass, 2 gas lamps and generator, 2 oil side lamps, large tail lamp, clock, mechanical driven oiler, all tools; is a very desirable car of 18 to 20-h.p.; have another car, no use for two; \$600 will buy. E. E. Ritter, Milton, Pa.

Cars Wanted

RUNABOUT, 4-cylinder, wanted; of first-class make, with rumble seat. I have a first-class 2-cylinder, 14-h.p. delivery wagon, as good as new, which I wish to make a trade; this delivery wagon cost \$1,400. Address F. J. H., care The Automobile.

TOURING CAR, 4-cylinder, wanted, or runabout; also an air-cooled motor and 2-cylinder motorcycle. "Motorcycle," care The Automobile.

WHITE STEAMER, Model H wanted; state condition and quote lowest price for spot cash. Metal Stamping Co., Jackson, Mich.

Parts and Accessories (FOR SALE)

ASTER MOTOR—24-30; suitable for automobile or launch; complete with transmission gear and clutch, La Coste coil, Lukenheimer oiler, Langmere carburetor, low-tension magnet, spark plugs, etc.; brand new, never run; cost, duty paid, \$2,300; will sell for \$1,300. Glasgow, 565 Washington St., Buffalo, N. Y.

AUTO TOPS from \$25 up; also recovering and repairing; prompt and satisfactory service and lowest prices guaranteed; a specialty of automobile upholstery. Paris Auto Top Co., 312 West 52d St., New York City. Phone, 6444 Columbus.

BODY for late Locomobile for sale, with close front seat, suitable for Locomobile steamer or Stanley; price \$10. One 18-inch Stanley burner, second-hand, perfect condition, \$15. One set of emergency hub brakes for Stanley runabout. Portland Garage Co., Portland, Me.

GOGGLES FOR SALE—A short time ago

we purchased a large lot of this season's new four-way leather goggles lined with green silk and elastic adjustable band; the regular price of these goggles is \$2.50 per pair; upon receipt of \$1.00 we shall be pleased to mail a pair to any address; an additional eight cents insures registered delivery. Parkway Garage Company, Central Park, West, and 110th St., N. Y. City.

HISEY cylinder grinder; electric; same as new; \$35. Box 68, Cambridge, Md.

SEARCHLIGHT—Cost \$30; made by American Lamp Co.; complete with swivel bracket, ready for immediate attachment; size, 9-inch glass, copper finish; lamp never used, as owner has no way for attaching same on his car, his reason for selling; first certified check received for \$20 insures delivery of lamp; can be returned if unsatisfactory. Mr. Fenker, Central Park, West, and 110th St., New York City.

TIRES—Two Le Marquis studded tires, 31-2 by 34, brand new, \$40 each, or \$75 for the pair. D. W. Romaine, 225-227 Mercer St., Jersey City, N. J.

TIRES HALF PRICE—Diamond, 34x4; also 34x4 1-2. H. Russell, P. O. Box 146, Portland, Me.

TIRES—New and second-hand always in stock at liberal discounts; shoes recovered; blowouts repaired. Bailey treads applied, etc. Call 5384 Columbus, or write Broadway Rubber Tire Works, 1902 Broadway, New York.

TIRES—We sell any tire on the market; new casings at the following prices: 28x2 1-2, \$9 each; 28x3, \$17 each; 30x3 1-2, \$20 each; 32x4, \$26 each; 34x4, \$27 each; other sizes and tubes in proportion. Chicago Vulcanizing Co., 1463 Michigan Ave., Chicago, Ill.

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INSURANCE for motor cars against every risk, including fire, explosion, self-ignition, theft, collision, accident, transportation, perils and other damage; cars insured anywhere in the world by the kind of "Policies that Protect," at the lowest rates of premiums; automobile bail bonds to cover all States. Dixie Hines, Times Building, New York City.

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COMPLETE electric charging machine for sale; charges 42 machines at once. Apply Johnson, 55 Hudson St., Jersey City, N. J.

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For full
particulars
see page
65

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190

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Cost Nominal. Service Unquestioned.
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The Practical Gas Engineer

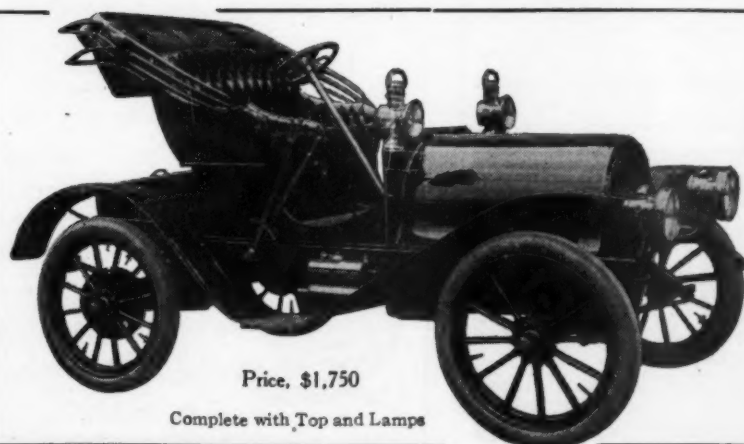
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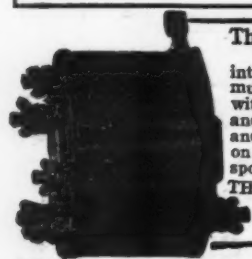
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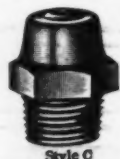
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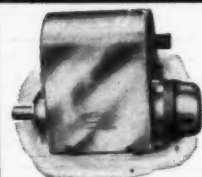
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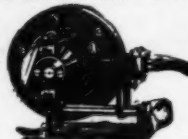
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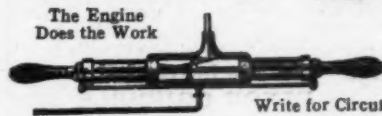


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Not only removes the DUST but heals
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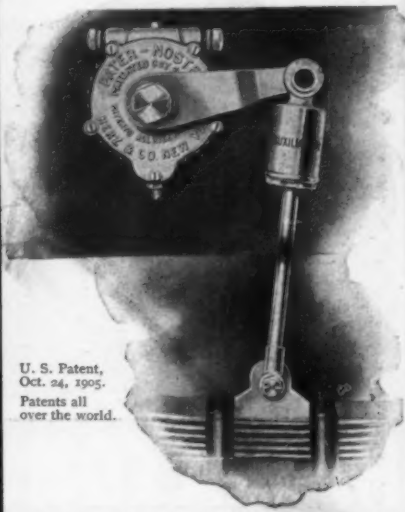
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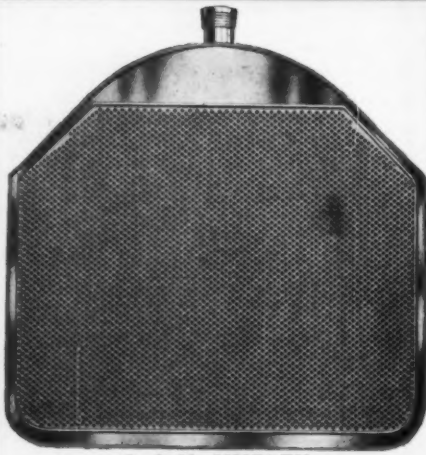
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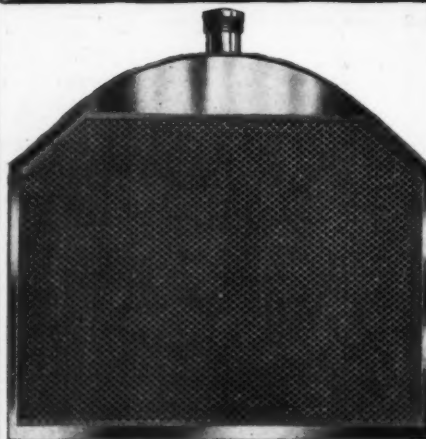
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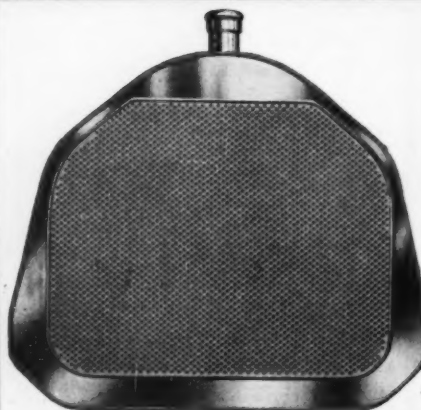
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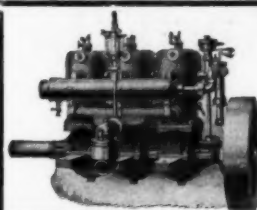
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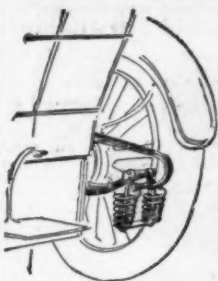
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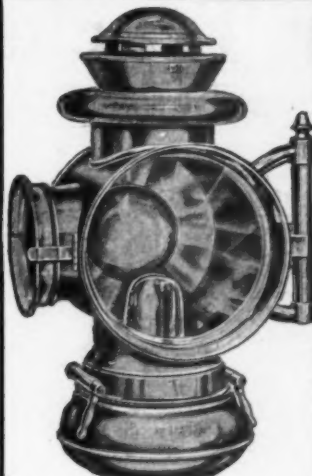
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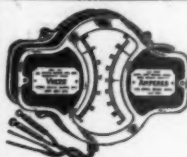
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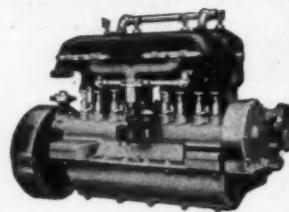


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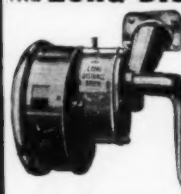
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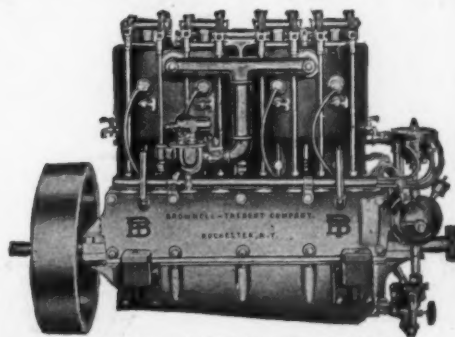
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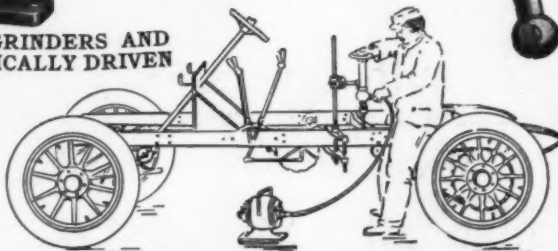
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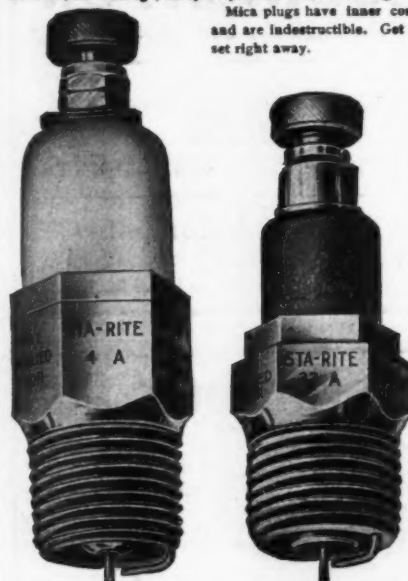
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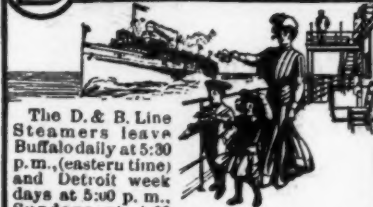
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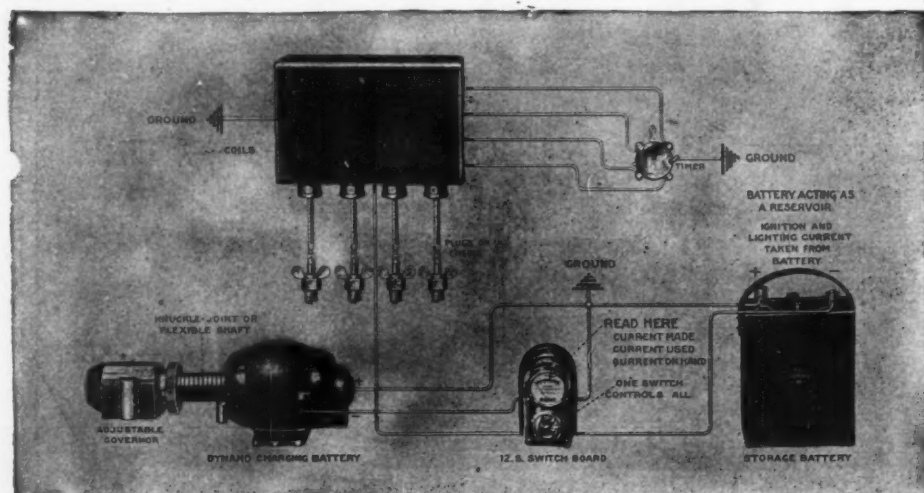
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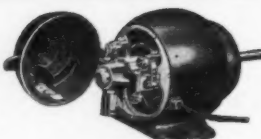
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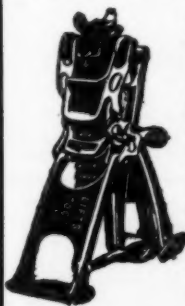
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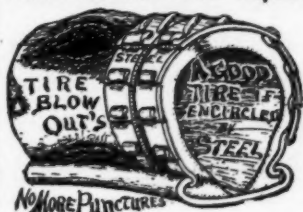


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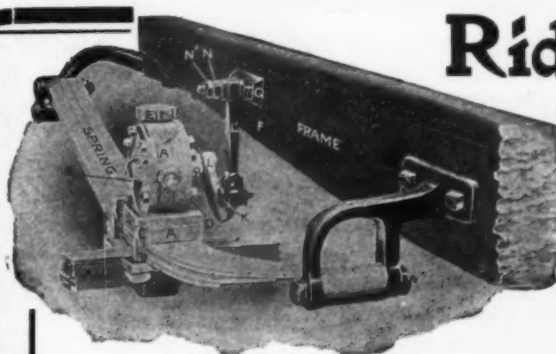
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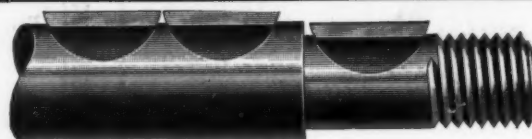
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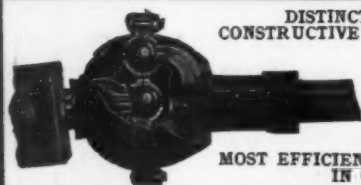
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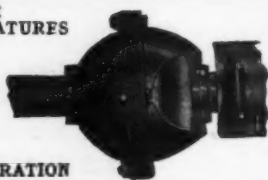
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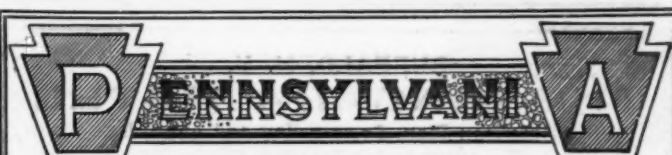
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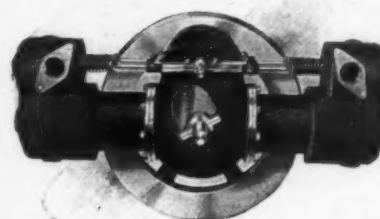
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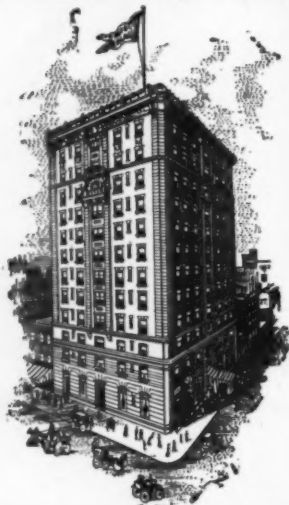
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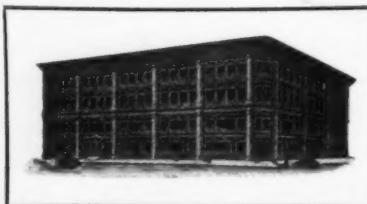
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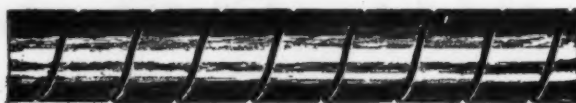
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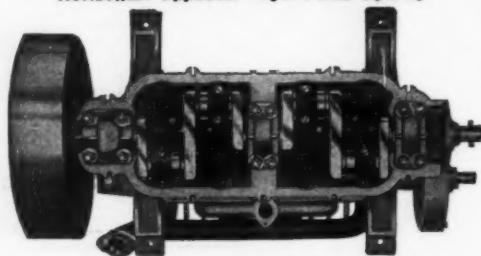
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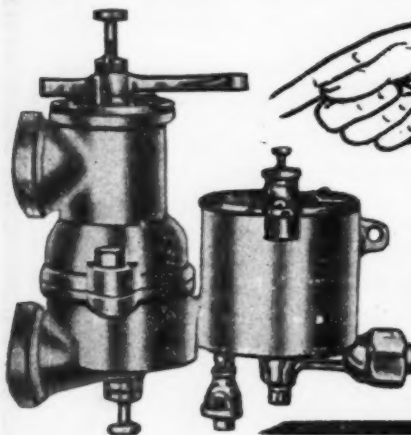
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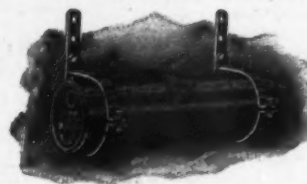
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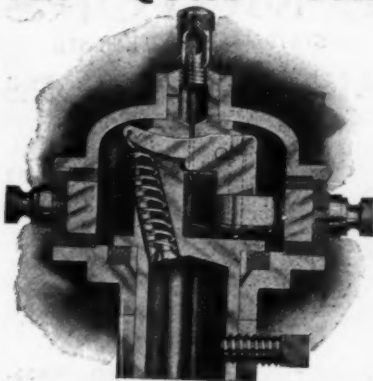
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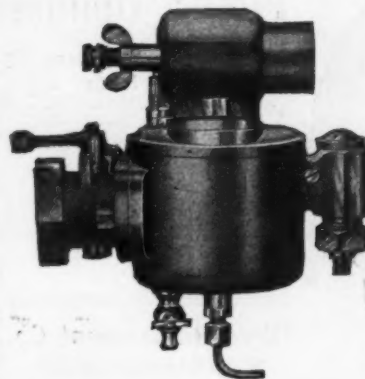
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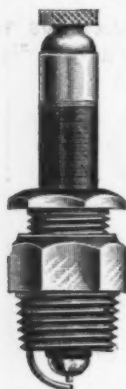
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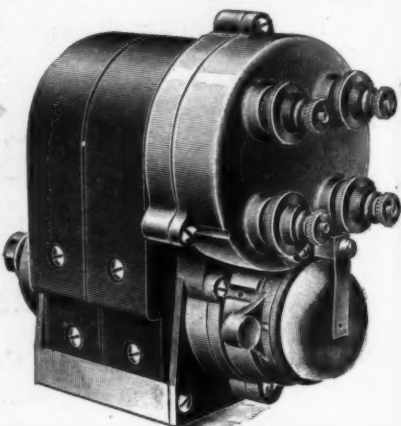


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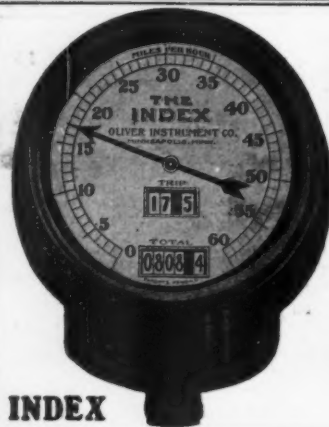
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Acknowledges the Superiority of the Index

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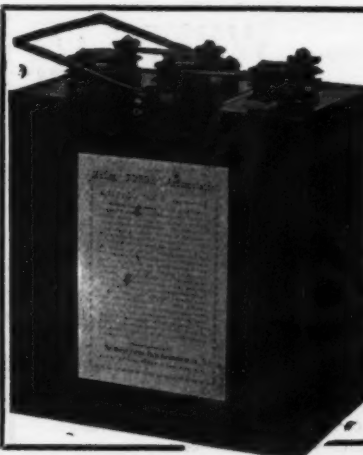
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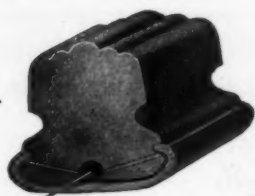
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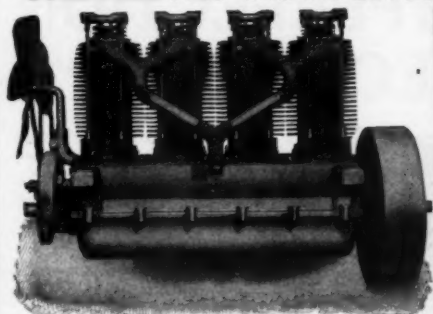
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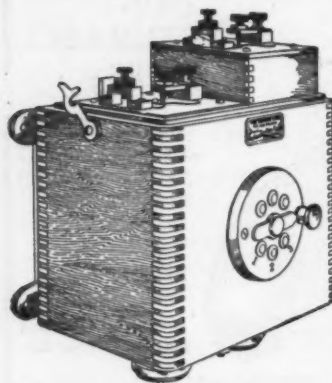
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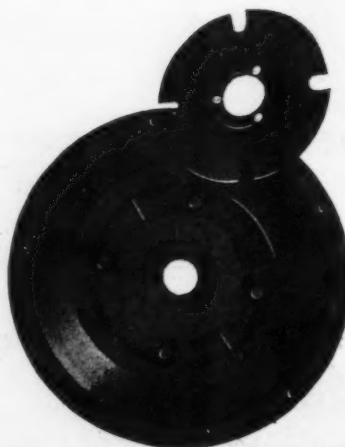


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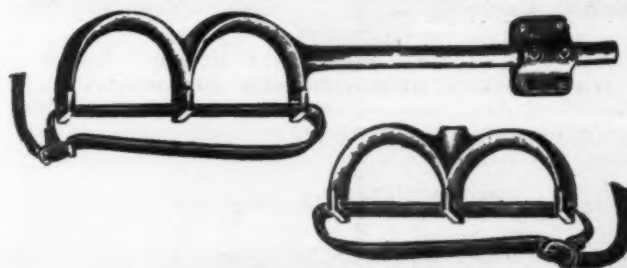
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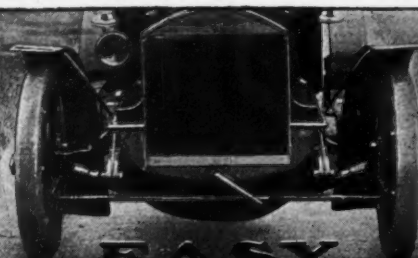
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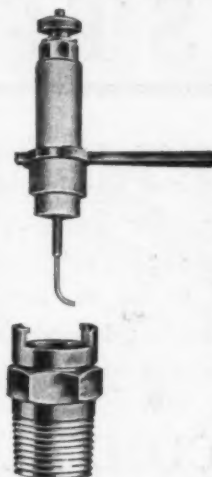
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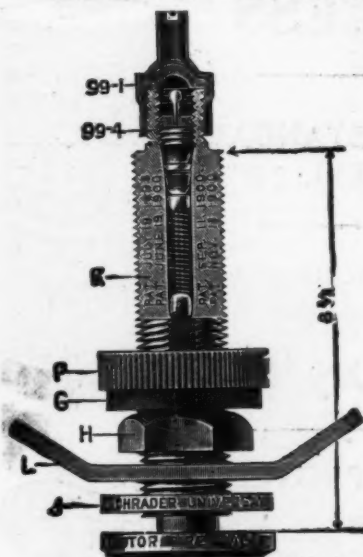
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SIMPLE AND ABSOLUTELY AIR TIGHT



Schrader Motor Tire Valves, as shown in cut, are the regular equipment for G & J Motor Tires, Hartford Dunlop Detachable Motor Tires, Fisk Detachable Motor Tires, and New Good-year Detachable Motor Tires. Our No. 777 Motor Tire Valve is the Standard for 2 1/2 in. and 3 in. tires and our No. 725 Motor Tire Valve is the standard for tires larger than 3 inches.

Supplied to the Trade by all Tire Manufacturers

Manufactured by

A. SCHRADER'S SON, Inc.

28-30-32 Rose St., New York

Five Years Experience in turning out

CASTINGS of
**ALUMINUM, PHOSPHOR
BRONZE, MANGANESE BRONZE**

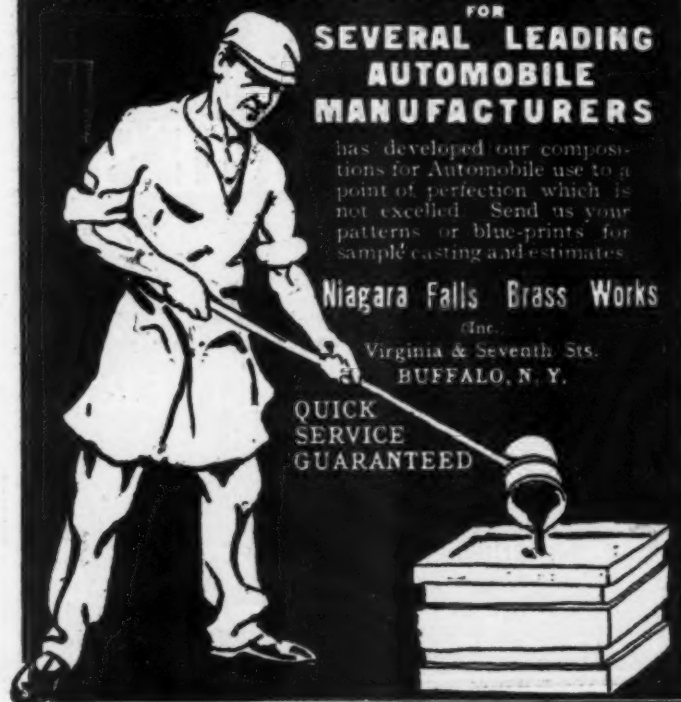
FOR
**SEVERAL LEADING
AUTOMOBILE
MANUFACTURERS**

has developed our compositions for Automobile use to a point of perfection which is not excelled. Send us your patterns or blue-prints for sample casting and estimates.

Niagara Falls Brass Works

(Inc.)
Virginia & Seventh Sts.
BUFFALO, N. Y.

QUICK
SERVICE
GUARANTEED



We Want to Sell You Just Two Things
ALUMINUM
 AND
MANGANESE BRONZE
CASTINGS

Our alloys are made from Pure Ingot metals, mixed by ourselves. You get no ready made alloys from us. Every casting made from a mixture especially adapted to the service required. A good place to get good Castings. Write for particulars now.

**SYRACUSE ALUMINUM
& BRONZE CO.**

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KINGSTON
1907 CARBURETORS

VERTICAL OUTLET

Furnished either Vertical
or Horizontal Outlet

Furnished as Regular
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Olds Motor Works
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**Over 63,000 Kingston Carburetors Now
in Use**

For Sale by
All Jobbers

BYRNE, KINGSTON & CO.
 Kokomo, Indiana, U. S. A.

A.O. SMITH CO.
 Highest
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**Pressed Steel
FRAMES**

High Carbon, Nickel, or Chrome Nickel

HEAVY STAMPINGS OF ALL KINDS

Factory Capacity Doubled Contracts Taken for Any
Standard Frames in Any Quantities for

IMMEDIATE DELIVERY
 and Contracts for 1908 Accepted

We also make
 Rear Axles, Front Axles, Transmission Gears, Clutches,
 Pressed Steel Hubs Etc., Etc.

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A. O. SMITH COMPANY

Park, Clinton and Virginia Sts., MILWAUKEE, WIS.

**YOU CANNOT STOP
A SUCCESS**

**THE WORLD'S STANDARD
IGNITION CELL:**

OF WHAT VALUE IS YOUR OPINION

If you have not tried

Elk Brand Dry Cells



BATTERY CONNECTOR

**WON'T
SHAKE
LOOSE**

A perfect contact no matter how hard the
JOLTS or VIBRATION

Stackpole Battery Co.
 ST. MARYS, PA.

HEINZE MOTOR CAR COILS

Selected for
AMERICA'S
REPRESENTATIVE

CHRISTIE'S RACER

in the
GRAND PRIX

FRANCE,
JULY 2d, 1907



The MOST
DEPENDABLE
and
THOROUGHLY
SATISFACTORY
COILS

In the world
HIGHEST EFFICIENCY
LONGEST LIFE

THE FIRST POINT FOR SUCCESS

In motoring is reliable ignition. In racers it is not a question of cost but solely a question of **QUALITY**. The unfailing dependability of "Heinze Coils" makes them absolutely the world's best.

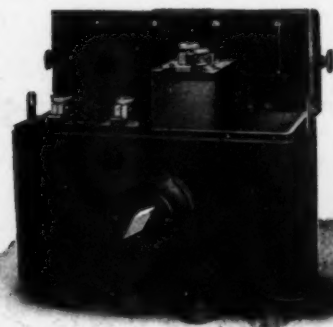
The most reliable under all tests. Always yield splendid results.

Made in Convenient Sizes suitable for any Type of Motor Cars.

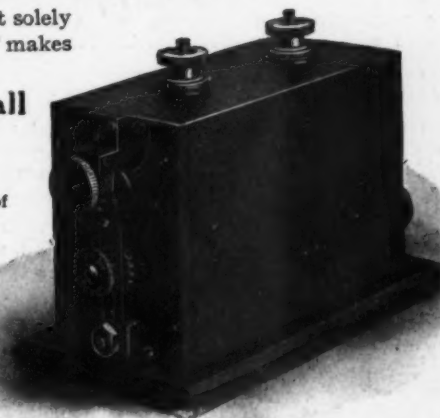
You will make a wise move in specifying Heinze Coils and you will never be disappointed.



Send for Catalogue



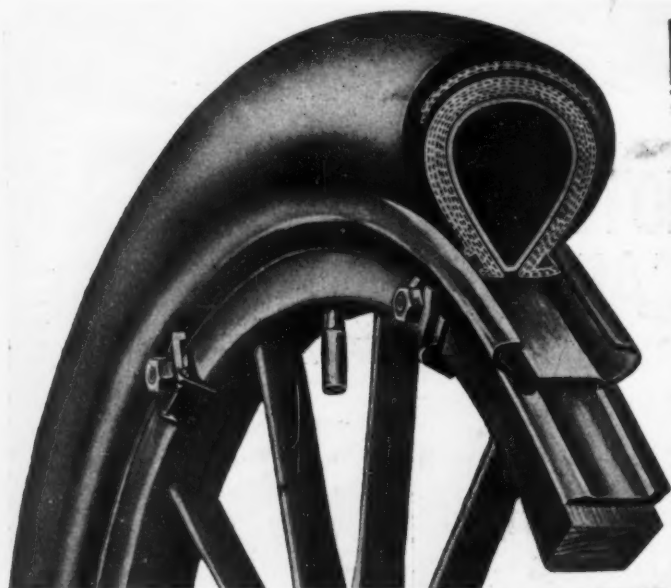
Cut of B-35, 4-cyl. Interchangeable Unit Dash Co



Type B-18, Single Cylinder Vibrating Box Coil

HEINZE ELECTRIC COMPANY,

Lowell, Mass.



Save 27 Minutes

The usual time required to replace a
punctured tire is 30 minutes

With the

CRESCENT

(Formerly Harburg)

Removable Rim

a complete tire change is made
in 3 minutes, by the watch.

The above sectional view shows the permanent beveled band, fitted to the wheel felloe, the adjustable rim holding any regular make of clincher tire, and the hinged clip, six of which are used to hold the rim in place.

Extra tires and rims are always carried—the tire being inflated at home before starting on a trip.

When a puncture is experienced, the damaged tire with its rim is removed and the extra rim and inflated tire is quickly bolted to the wheel, the entire operation consuming but three minutes.

Nothing could be more simple. Irritating delays are absolutely done away with. All parts are galvanized, nicked or bronzed, thereby preventing any possibility of their rusting tight.

Any regular make of clincher tires fits these rims. Can be used on old or new wheels.

Write to-day for particulars, prices and descriptive circular.

The Crescent Parts Co.

Dept. A. 1743 Broadway
NEW YORK CITY

SPLITDORF IGNITION—NONE BETTER

One of Many Good Judges says :

Ardmore, Pa., May 28, 1907.

Mr. C. F. Splitdorf,
New York.

Dear Sir :

The car with which we won the 24-Hour Track Championship at Pt. Breeze on May 24th and 25th was equipped with a Splitdorf Coil, and I wish to compliment you on your product, as the action of your coil was perfect throughout the entire race.

This was a stock coil which we selected from the regular coils that you are shipping us from day to day.

Yours very truly,

THE AUTO CAR CO.,

John G. Utz, Chief Engineer.

You can also have perfect results by using

SPLITDORF IGNITION

C. F. SPLITDORF

Walton Ave. and 138th St.,

NEW YORK



On Your Machine—Not On Your Mind

After all, the tire question, provided it has been wisely disposed of at the outset, is a mere incidental one. It assumes an undue prominence only when this precaution has been omitted.

Many good things might be truthfully said about

G & J TIRES

but they are all summed up in this:—that when your machine is equipped with them you can dismiss the tire question for good.

In case of accident quick and permanent repairs insure an immediate return to the status quo.

The Midgley Universal Rim can be used interchangeably for the Dunlop or clincher type. It's no trick at all to take the tire off when you want to.

G & J TIRE Co. INDIANAPOLIS, IND.

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NEW YORK—10 W. Sixtieth St.
SAN FRANCISCO—423-433 Golden Gate Ave.

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AJAX TIRE

GUARANTEED for 5000 MILES RIDING

Think what that means!

Two hundred days, at least, of freedom from tire expense and worry.

Isn't it merely a matter of common sense to believe that the tire that is sold with the strongest guarantee *must* be the best?

Write for copy of guarantee, stating what size tire you are using.

Address Dept. C.

AJAX-GRIEB RUBBER COMPANY

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LOCKE & COMPANY

AUTOMOBILE BODIES

¶ are now taking orders for early deliveries of Limousines, Landaulets, and other forms of closed bodies.

¶ Without parallel in this country or abroad.

¶ Combining extreme elegance, most refined designs and unexcelled durability.

¶ Not low in price, but the highest grade of work and finish that can be produced.

218-220 WEST 84th ST., NEW YORK

Telephone, 3258 Riverside

This is WHY the Gabriel

Leads them
ALL



ONE
SINGLE
TUBE

GABRIEL Leadership is never questioned. It is very generally recognized that the Gabriel Horn is the choice of a large majority of automobilists

Why this leadership? Why is the Gabriel Horn the largest selling horn in the world? It is simply because the Gabriel is the most practical, the most musical, the most useful horn made in the world. Every place you go you hear the Gabriel. Every swell looking auto you pass is equipped with it. Isn't it "up to you" to keep up with the times and get a Gabriel? Three sizes.

Send for the book "A False Alarm," FREE!

GABRIEL HORN MFG. COMPANY

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ALLYNE

THREE FOUNDRIES

running exclusively on Automobile Castings making the highest grade of

Aluminum Bronze Brass
and

Parsons Manganese Castings

signifies satisfaction to a very large number of automobile builders.

Are you amongst the number?

If not, write us and learn why we operate foundries at three different points.

CLEVELAND - DETROIT - BUFFALO

We make a specialty of handling heavy and intricate work—and delivering on the date promised.

The Allyne Brass Foundry Co.

QUALITY

F-S Co.

Attention Automobile Owners

INSURE YOUR CARS AGAINST PUNCTURES AND SOFT TIRES, ALSO YOURSELVES FROM NERVOUS STRAIN AND ANXIETY.

Elastro Resilient Compound Will Do the Trick
(Patents Pending)

Any and all styles and makes of tires can be filled with Elastro—and "must be filled on the wheels."

It is the greatest discovery of the age in automobile equipment, being non-collapsible and entirely eliminating from the mind of the owner, occupant or driver all anxiety, worry and nerve strain from expected punctures or collapse of tires and accidents caused by air-filled tires.

TERRITORIAL RIGHTS

It being the purpose of this company (The Elastro Manufacturing Co.) to sell Territorial Rights for the exclusive use of the said Elastro Compound throughout the United States, by Town, City, County or State Rights on a royalty basis, and supply the necessary equipment or plant for tire or tube filling, for which we are prepared to submit plans, specifications and prices, on application, and name the territory the purchaser desires to obtain. All communications in this line to be addressed to Ernest Cady, Manager of the Agency Department.

MANUFACTURED BY

THE ELASTRO MFG. CO.
26 State St., Hartford, Conn.

OFFICERS:

H. B. Philbrick, Pres. and Treas. Chas. H. Cooley, Vice-President
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Incorporated 1906

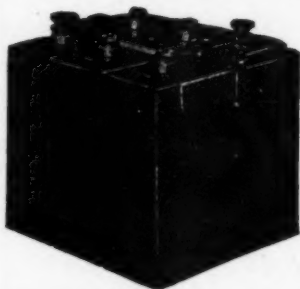
Capitalized at \$50,000

Full Paid



REX IGNITER

The King of All Storage Batteries



Particularly adapted for ignition work. The grid is of such a form as to absolutely lock the active material in place and prevent it dropping out when in service. The plates are assembled in celluloid jars, each jar having a separate cover. By the use of separate covers, entirely insulated from one another, the charge is retained for an indefinite period. The connection which extends from the inside of the cells to the outside is of such a design as to reduce corrosion to a minimum. As far as possible

brass and nickel parts have been eliminated. All parts are manufactured by the company, thus making it possible to assure the quality of the product with much more certainty than if the work was undertaken by a number of independent firms.

Longer Life
Efficiency Unsurpassed

We guarantee satisfaction
We make deliveries when promised

We have established charging stations at

220 Congress St., BOSTON
253 Broadway, N. Y. CITY

On sale by all dealers, or write to

New England Motor Co.

Main Office and Works:
LOWELL, MASS.



The **SQUEAK DEVILS'** finish Mexican Graphite (U. S. G. Co.'s) Auto-Lubricants

Reduce friction, smooth out kinks and stop the squeaks. Put new life into old machines; give smoother, greater power to new ones.

Prevent wear and save repairs by using only U. S. G. Co.'s

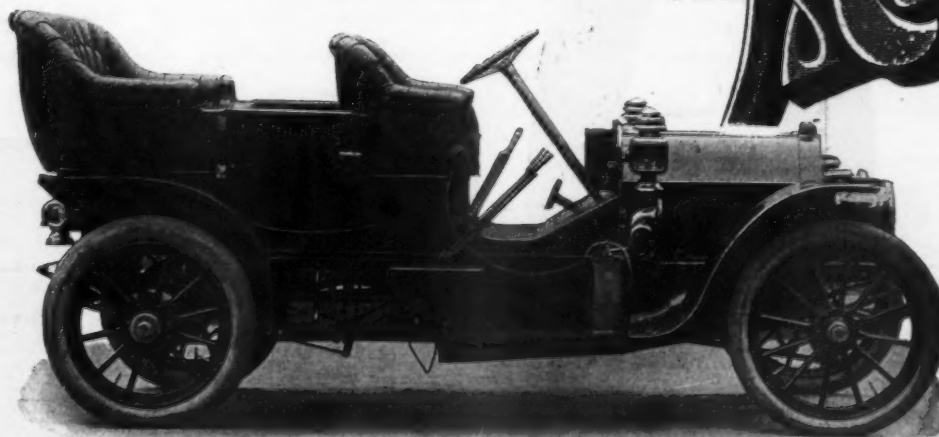
**Grafita, No. 205 Lubricating Graphite,
Mexican Graphite Auto-Lubricant**

Made from pure, soft Graphite powder "not flake" but air-floated and gritless.

One trial convinces auto owners, chauffeur, garage managers and motor-boat owners that they are superior to any "flake" graphite or other lubricant. For 20 cents, to pay postage, we send, once only to any address, one 35-cent pound Auto-Lubricant free. Please name your dealer. Ask for Booklet H.

THE UNITED STATES GRAPHITE CO.,
SAGINAW, MICH., U. S. A.

THE MOST UP-TO-DATE CAR IN AMERICA



Model C.
30-35 H.P.
\$3,500

FOUR TYPES

5 Passenger Touring Car Semi-Racer Luxurious Limousine (seats seven) 7 Passenger Touring Car

Write **MOON MOTOR CAR CO., St. Louis, Mo.**

Don't let the Siren Summer

make you forget that "the time to push business is when business needs pushing," and that "times of peace" is the time to prepare for the war of competition next fall and winter.

Study up your advertising matter NOW, and don't overlook the importance of ILLUSTRATIONS.

The result of your campaign is almost solely dependent upon your cuts. The engravings you use can add 100 per cent to the appearance and pulling power of your folders, catalogs, magazine, newspaper and trade-paper ads.

YOU WANT HIGH-CLASS ENGRAVING

MOSS

Operates the most modern equipped plant.
Employs the most skilled workmen.
Uses only the highest grade materials.
Prices are consistent with quality.
Service is prompt.
Cuts are always guaranteed satisfactory.

SEND US YOUR ORDERS

We make engravings which catch the eye, ornament the ad. and that have the *life, snap* and "go" necessary to *sell your product*. As perfect engravings as can be produced for letter-press printing.

TRY US



MOSS

PHOTO-ENGRAVING COMPANY

295-309 Lafayette Street, cor. Houston ("Puck" Building)
NEW YORK



Extract from many motorists'

DECLARATION OF INDEPENDENCE

When, in the course of motoring events it becomes necessary for certain motorists to dissolve the bands which have unwittingly held them to unnecessary and disquieting tire troubles, a decent respect for the interests of other motorists requires them to publicly declare their *ability* to thus dissolve themselves.

We hold these truths to be self-evident: that all motorists are created more or less equal; that they are entitled to certain inalienable rights; that among these are life, touring, and the pursuit of speed; that to secure the full enjoyment of these rights automobiles have been instituted among men, deriving their right to exist from the matchless pleasure which they afford mankind. That whenever any brand of tire-equipment for such automobiles becomes destructive of these ends, it is the indisputable right of motorists to discontinue it and to substitute in its place an equipment of GOOD tires as the surest guarantee of their continued safety and happiness.

We, therefore, as a body of pleasure-seeking motorists, appealing to the sound judgment of other motorists for the rectitude of our intentions, do, in the name and for the promotion of automobiling as an unrivalled sport, declare and publish that, after severe and repeated tests on highways of every possible description, we unhesitatingly advise the use of

**MORGAN & WRIGHT TIRES
ARE GOOD TIRES**

firmly believing that by the general adoption of this tire-equipment motorists everywhere will be enabled to absolve themselves from all allegiance to tire annoyances, be free and unhampered to enjoy themselves as motorists are entitled to, and to give to touring that most essential requisite, namely, an assurance of protection against the petty disaffections which tires of less inherent strength are known to be heir to.

(Signed by 99 3/10 of all Morgan & Wright tire users.)

MORGAN & WRIGHT DETROIT

NEW YORK: 314 W. 47th St., 17 Warren St.
CHICAGO: 81 Michigan Avenue.
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LOS ANGELES: 940 South Main Street.
SAN FRANCISCO: 423-433 Golden Gate Avenue
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He is not the only man who has saved a fine and annoyance by having this instrument on his car.

While a reliable Speedometer is a good thing to have, it would not have protected him, and he would have had to go to the station with the officer and the officer's watch would have won.

EXTRACT FROM A LETTER RECEIVED FROM A WELL-KNOWN CHICAGO AUTOIST

Chicago, Dec. 18, 1906.

I note that you would like to have a description of the police incident I mentioned to you in New York. It was as follows:

One evening, while going home from the office, at a speed which I felt confident did not exceed the fifteen-mile limit here, I was stopped by a policeman who insisted that I was running too fast, and that I must go to the station with him. I asked him about the time, and though he seemed to think I was scheming to distract his attention, I insisted that he compare his watch with mine. After he had done this, I started to take the recording paper out of the instrument and put the time on the back of it, so I could show at what speed I was running after we got to the police headquarters. He had already gotten into the car to ride over there with me, but after looking at the record-sheet, he stepped down out of the car, telling me "to get out of there with that damn thing."

This was the last time I was stopped; however, I try to keep from exceeding the speed limit.

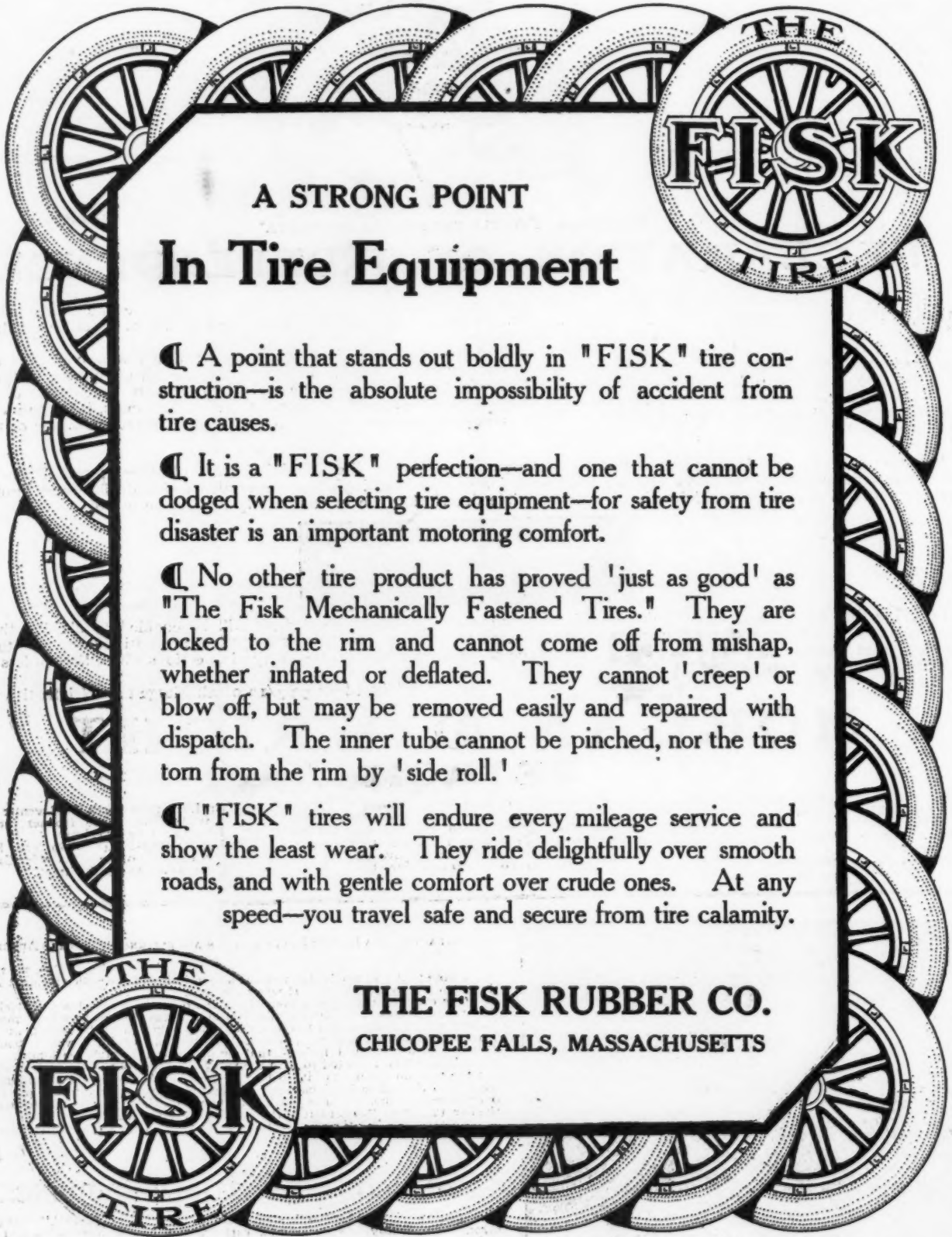
W. J.

INCONTROVERTIBLE EVIDENCE!

Equip your car with the "BULLARD" and "LET IT ALONE." Space will permit of facts only. Write for new catalogue giving full information and prices on both the Bullard Speed Recorder (3 in 1) and the Bullard Speedometer.

J. H. BULLARD, Highland Station, Springfield, Mass.

THE WHITE COMPANY, WESTERN BRANCH—240 Michigan Avenue, CHICAGO
BOSTON, MASS.—43 Columbus Ave. SAN FRANCISCO OFFICE—428 Golden Gate Ave.



A STRONG POINT In Tire Equipment

☞ A point that stands out boldly in "FISK" tire construction—is the absolute impossibility of accident from tire causes.

☞ It is a "FISK" perfection—and one that cannot be dodged when selecting tire equipment—for safety from tire disaster is an important motoring comfort.

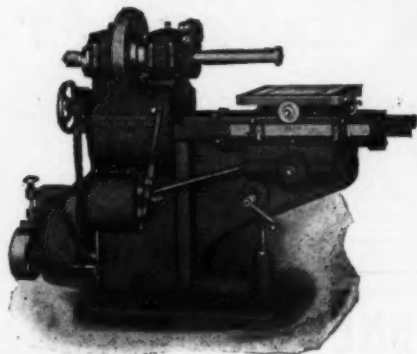
☞ No other tire product has proved 'just as good' as "The Fisk Mechanically Fastened Tires." They are locked to the rim and cannot come off from mishap, whether inflated or deflated. They cannot 'creep' or blow off, but may be removed easily and repaired with dispatch. The inner tube cannot be pinched, nor the tires torn from the rim by 'side roll.'

☞ "FISK" tires will endure every mileage service and show the least wear. They ride delightfully over smooth roads, and with gentle comfort over crude ones. At any speed—you travel safe and secure from tire calamity.

THE FISK RUBBER CO.
CHICOPEE FALLS, MASSACHUSETTS

How Many Manufacturers

are able to obtain a round, straight and smooth bore in their Cylinders, as well as get uniformity in size, thereby making them **INTERCHANGEABLE**?



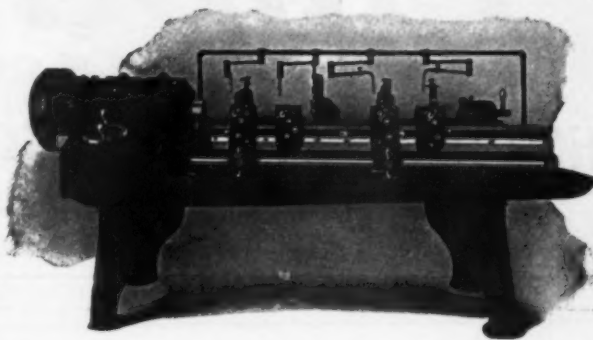
THE ANSWER—Only those who are finishing them by **GRINDING**.

Our booklet on this subject tells of the many reasons why grinding is the only satisfactory method for doing this work. It also describes the **HEALD CYLINDER GRINDER** fully, a machine designed especially for Internal Grinding.

A copy of this booklet is yours upon request.

THE HEALD MACHINE COMPANY
148 Bond Street, WORCESTER, MASS.

"LO-SWING" LATHE



Lo-Swing, a Single Purpose Machine, especially adapted to Automobile and Motor Shafts, Cam Shafts and all similar work

Range 3 1-2 in. diameter to 60 in. long.
Four tools cutting at same time

It turns with unequaled accuracy and rapidity all shafts having diameters between 1-2 inch and 3 1-2 inches, with any number of shoulders, and all lengths up to 60 inches.

Manufactured and Sold Exclusively by

FITCHBURG MACHINE WORKS
FITCHBURG, MASS., U. S. A.

SPECIAL MACHINE TOOLS FOR AUTOMOBILE MAKERS

The Geometric Collapsing Taps

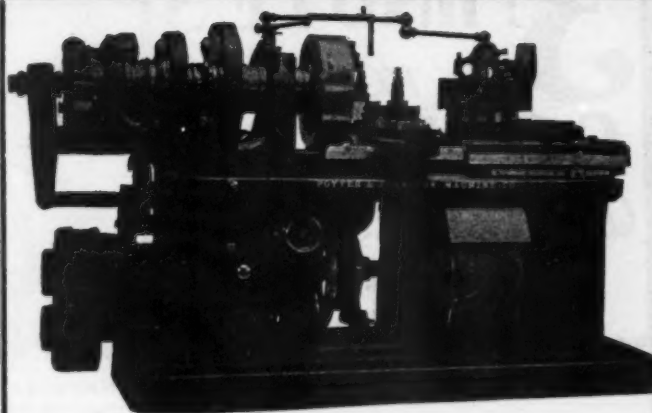
SAVE ALL TIME OF BACKING OUT



After a hole is tapped the desired depth, the Chasers automatically recede, allowing the tap to be withdrawn at once. No time is wasted backing out and neither the Tap nor thread is liable to injury. Considering this, will you keep on using the old Solid Taps? Try them in your shop.

The Geometric Tool Co.
Westville Station
New Haven, Conn., U. S. A.

FOREIGN AGENTS: Chas. Churchill & Co., Ltd., London, Birmingham, Manchester, Glasgow and Newcastle-on-Tyne. Alfred H. Schutt's, Cologne, Brussels, Liege, Paris, Milan and Bilbao. Schuchardt & Schutte, Vienna, St. Petersburg, Stockholm and Berlin.



Interested in a Matter of Profit?

Then profit by the experience of the leading manufacturers of both foreign and American cars, and install

POTTER & JOHNSTON Manufacturing Automatics

For machining the duplicate parts entering into your Automobile Construction, such as gears, pinions, pistons, piston rings, hubs, brake drums, etc.

Entirely automatic, except placing piece in chuck and removing when finished. Operated in groups of four to eight machines by one attendant.

CATALOGUE IS MIGHTY INTERESTING. COPY!

Potter & Johnston Machine Co.
PAWTUCKET, R. I.

Empire Tires

WEAR LONGEST

EMPIRE AUTO. TIRE CO.
TRENTON, N. J.

Chicago—20 La Salle St.; 1615 Wabash Ave.
Boston—292 Devonshire St.
New York—148 Chambers St.; 2230 Broadway.

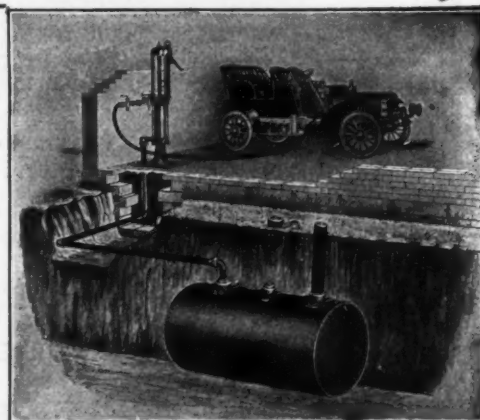
JUST AS NECESSARY AS GASOLENE

is a BOWSER GASOLENE TANK

BECAUSE—It's absolutely safe.
It's leak and evaporation proof.
It keeps the gasoline pure.
It saves on the cost of gasoline.
It insures against shortage.

The "how of it" is given in catalog J. Send for it and ask for prices.

S. F. BOWSER & CO., Inc.,
PORT WAYNE, INDIANA
255 Atlantic Ave., 299 Broadway, 209-210 Fisher Bldg., 66-68 Frazer Ave.,
BOSTON, MASS. NEW YORK CITY CHICAGO, ILL. TORONTO, ONTARIO



Cut 41. Long Distance Outfit
The Standard Garage Equipment for Gasolene Storage.

3 MINUTES
to repair a
GOODRICH
Quick Detachable
TIRE



9 MINUTES
to repair
OTHER
MAKES

CENTRAL PENNSYLVANIA AUTOMOBILE COMPANY
GENERAL AGENTS FOR CENTRAL PENNSYLVANIA
HIGH GRADE CARS, ELECTRIC, GASOLINE AND STEAM

HARRISBURG, PA., MAY 17, 1907.

Gentlemen:—In our recent Endurance Run, pulled off under the most trying circumstances, the roads being notoriously bad, and the weather worse if possible, we had on the White Steamer, Car No. 6, a valuable demonstration of the advantages of the Q. R. Rims. The time required in repairing our first puncture was not measured accurately, but we repaired the second one, and were again in the race, after four minutes. We next found a ten-penny wire nail driven in clear to the head. In this case, we took the tire off, put in a new tube, inflated it with the air pump of the car, in three minutes by the observer's watch, which we believe was "going some" in this line of work. Our less fortunate competitors were, in many cases, three times that long in doing the same work. Some cars in this run suffered as many as eight punctures and blow-outs, which accounts for the many bad scores shown on the Official record, and we considered ourselves fortunate in having Goodrich Q. D. tires.

Yours respectfully,

CENTRAL PA. AUTOMOBILING CO.
I. W. DILL.

I. W. D.—M. M. T.

THE B. F. GOODRICH COMPANY,

Akron, Ohio, U. S. A.

HAVE YOU TRIED OUR NEW CELL?

COLUMBIA IGNITOR
RED TOP

COLUMBIA IGNITOR
RED TOP

COLUMBIA IGNITOR
RED TOP

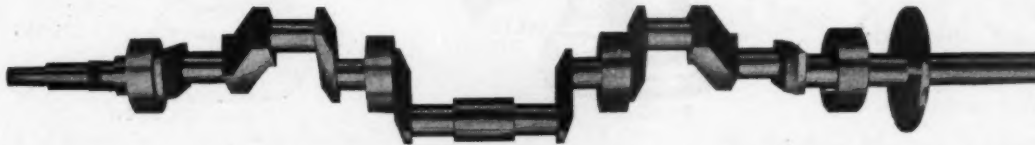
COLUMBIA IGNITOR
RED TOP

COLUMBIA IGNITOR
RED TOP

NATIONAL CARBON COMPANY
CLEVELAND, OHIO.

Finishing Motor Crank Shafts

By the TINDEL SYSTEM of LATHE and GRINDING MACHINE



THE TINDEL-MORRIS COMPANY
EDDYSTONE, PENN., U. S. A.

BEYOND all comparison the cheapest way to finish motor crank shafts in quantity from the rough forgings is by the use of the Tindel-Albrecht Lathe for rapidly cutting down the rough forgings to grinding size and finishing in the Tindel-Albrecht Special Crank Shaft Grinding Machine.

Cost of installation of plant is less than any other.

No accessory fixtures are required.

The output is much the largest.

The wear of grinding wheels is trifling.

The accuracy of the work is unequalled.

Write us for particulars.

Vulcanizing Substitute Cement and Acid Cure Solution





CHARLES E. MILLER, Manufacturer, Jobber, Exporter and Importer
Home Office, 97-99-101 Reade Street, New York


Branches: 924 Eighth Ave., New York City; 318 & 320 No. Broad St., Philadelphia, Pa.; 202 & 204 Columbus Ave., Boston, Mass.; 406 Erie St., Cleveland, O.; 227 & 229 Jefferson Ave., Detroit, Mich.; 824 Main St., Buffalo, N. Y.


MOTORISTS, as a class, are apt to fall into expensive habits. One of the habits is having his tire or inner tube sent to a repair shop every time he has a blow out or a puncture, which means quite an expense account at the end of the season.

If every motorist would use Acid Cure Solution he could reduce his repair bills 75%. For instance a puncture repaired at the garage or repair shop would cost from \$2.50 to \$3.50 while with Cement and Acid Cure Solution the cost of these repairs would not be one-tenth this amount which is a big saving.

 repairs instantly; no waiting; no patch coming off after running 5 or 10 miles, for the repair will be permanent as it produces the same effect as vulcanizing.

 will splice your inner tubes, repair curb cuts on solid tires, attach leather to rubber, retread your tires or unite any grade of rubber.

 Cement and acid is the most essential part of your repair tools, and should always be carried in your Auto, for the happy Motorist is the man that can repair his puncture in less time than it takes to change the tire or inner tube.

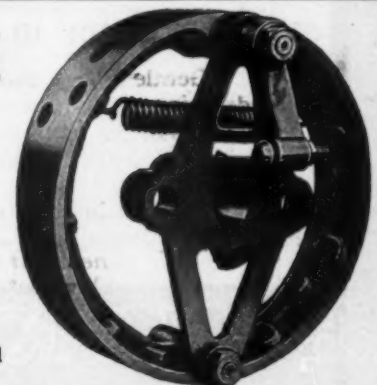
 Cement and Acid Cure Solution, 1 pint, \$1.50; 1 quart, \$2.75; 1 gallon, \$8.00.

A CORK INSERT CLUTCH FOR COMMERCIAL CARS

The constant starting and stopping of heavily loaded commercial cars on their way through crowded city streets call for high efficiency in both clutch and brakes. This need is fully met by the use of Cork Inserts. They lessen the liability of collision, and eliminate the cutting or wearing of opposite surfaces, thus doing away with the necessity for repairs. Cork Inserts are used in clutches and brakes by 31 leading manufacturers.

Write for full particulars.

National Brake & Clutch Co., Owner and Patentee, 16 State St., Boston
Standard Brake Co., Representative, 101 West 66th St., New York



Coppock Motor Car Co.'s Clutch.

"THE OLD RELIABLE"



OIL and GAS

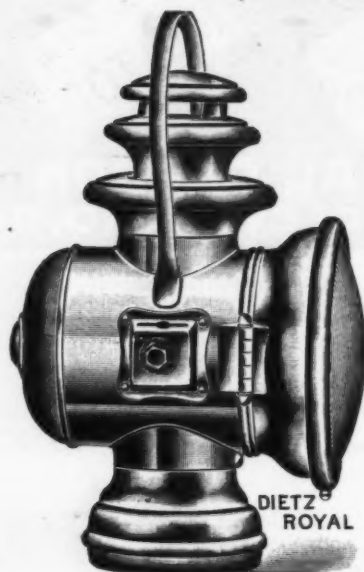
Dietz "Royal" Lamps are all that the name indicates. They are graceful in appearance and are especially designed for touring cars. They reflect a light of 65 candle power.

Dietz "Sterling" Square Lamps are not only unmatched for their graceful lines and dignified appearance, but excel any square lamp on the market in burning qualities. They are distinctly modish.

SEND FOR CATALOGUE AND DISCOUNTS

DIETZ HEAVY CAR LAMPS

[COLD BLAST PRINCIPLE]



DIETZ
ROYAL

\$15.00 LIST EACH.



DIETZ
STERLING

\$15.00 LIST EACH.

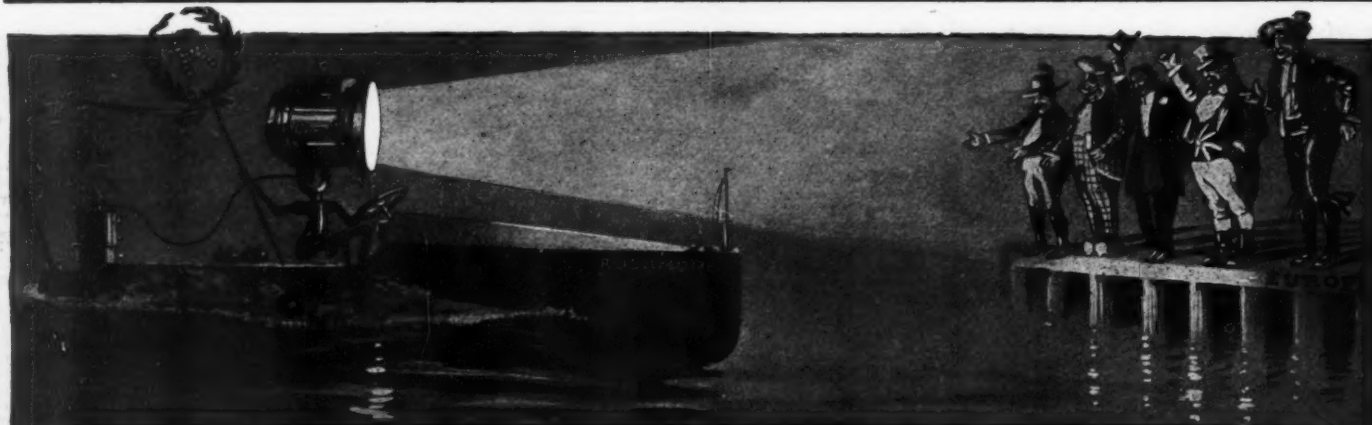
R. E. DIETZ COMPANY

LARGEST MANUFACTURERS OF LANTERNS IN THE WORLD

60 Laight Street

ESTABLISHED 1840

NEW YORK, U. S. A.



THE RUSHMORE IS WELCOMED
with acclaim in every country where the automobile is known.

A year ago we thought our export business was worth talking about (and it was), but it has increased fourfold since then. In France, where, if anywhere, an American article must sell purely on its merits, we have outgrown our late quarters at 95 Ave. des Champs Elysees, and have taken the entire ground floor of the new fireproof building at 116 Boulevard Péreire, in the new automobile "row" of Paris.

And this in spite of the fact that cheap copies of the Rushmore are almost as numerous in France as at home.

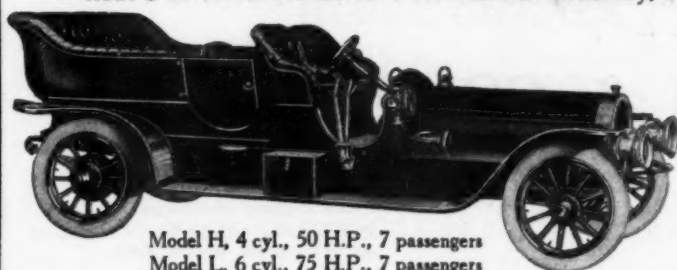
RUSHMORE DYNAMO WORKS
LONDON PLAINFIELD N.J. CHICAGO

The National

STILL HOLDS THE WORLD'S RECORD of 1,094 $\frac{3}{16}$ miles in 24 hours, made Nov., 1905, by A SINGLE NATIONAL STOCK CAR

Demonstrating NATIONAL Reliability and Endurance

Many unsuccessful attempts have since been made to break this record. In some of the most recent trials, *two or more* cars of one make have been driven alternately, but the total mileage obtained barely exceeded the mileage of



Model H, 4 cyl., 50 H.P., 7 passengers
Model L, 6 cyl., 75 H.P., 7 passengers

One NATIONAL Car

Write for Catalogue and Booklet
"What Owners Say About Their Nationals."

National Motor Vehicle Co.
1000 E. 22d Street, INDIANAPOLIS, IND.

Member American Motor Car Manufacturers' Association, N. Y.



WHAT THEY SAY OF THE

RUSHMORE SHAKING GRATE GENERATOR

(AND THE RUSHMORE SEARCHLIGHT.)

No. 7

THE RUSHMORE DYNAMO WORKS,
Plainfield, N. J.

GARDNER, MASS.

Gentlemen: I have made several trials of the new 9-inch searchlight and am highly pleased with the results. The light is diffused perfectly. Ample soft light close ahead, and the intense beam from the mirror reaches as far as is ever required.

The operation of the GENERATOR is complete, and to one used to digging the packed lime out of the carbide trays of other makes, this point will be thoroughly appreciated. I consider this outfit a perfect headlight equipment for automobile use, and trust that it will meet with the sale it deserves.

Yours very truly,

B. H. BANCROFT.

No. 8

RUSHMORE DYNAMO WORKS,
Plainfield, N. J.

ERIE, PA.

Gentlemen: I enclose with my compliments two photographs of my White car with your 9-inch swinging searchlight mounted on the condenser, and your GENERATOR on the dashboard. I am sending you these pictures because I am delighted with my lamp, being able to travel twenty to twenty-five miles an hour over country roads in the darkest night. I am delighted with the lamp and the GENERATOR. With best regards,

Yours very truly,

ERNST R. BEHREND.

No. 9

RUSHMORE DYNAMO WORKS,
Plainfield, N. J.

W. E. TILLOTSON MANUFACTURING CO.

PITTSFIELD, MASS.

Gentlemen: I enclose check for your invoice of June 2d for handle.

I want to add that the lamp and the GENERATOR are giving me the very best of satisfaction, and seem to be everything you have claimed for them.

Yours truly,

C. H. FOSTER.

The Rushmore Generator is not a cheap makeshift, but a fully developed automatic device. When handled according to instructions, it gives a perfectly uniform gas supply with none of the annoyances common to the ordinary types of generator. Our catalog describes it in detail.

Rushmore Dynamo Works, Plainfield, N. J.
LONDON PARIS CHICAGO

PIRELLI

MADE BY MACHINERY

Every tire uniform in construction. All the guess work of unskilled hand labor eliminated. Try one PIRELLI TIRE alongside the old style manufacture and note the difference in wear. The guarantee of one of the oldest and largest rubber manufacturers in the world is behind these tires. Send for price list.



PIRELLI & COMPANY

296 Broadway

New York, N. Y.

Philadelphia Distributors
THE AUTOLIGHT & MOTOR SUPPLY CO., Inc.
506-508 N. Broad Street, Philadelphia, Pa.

New England Distributors
PETTINGELL-ANDREWS CO.
160 Pearl Street, Boston, Mass.

Responsible Concerns Are Requested to Communicate With Us Regarding Open Territory.



The Selection of Materials for Timken Roller Bearings

is not limited to any grade of stock steel, either by price or convenience. Every bar of steel is made to the TIMKEN analysis chemically—and tested to the TIMKEN test physically—which test means a rejection of forty-five per cent of every ingot before metal of suitable density and soundness for

TIMKEN ROLLER BEARINGS

is obtained. This stock is made for and controlled by us and has proven by practice that, though the chemist and metallurgist may do their work with test tube and crucible, there is only one sure test of anti-friction bearing quality and that is actual work under the most severe conditions.

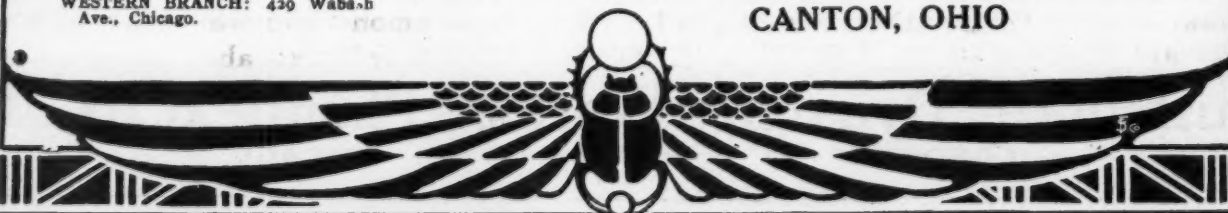
The makers of over 60% of High Grade American Automobiles recognize

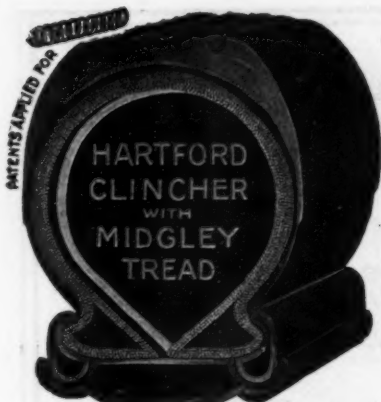
The TIMKEN Principle Correct and TIMKEN Quality Supreme

You may not be using them yet—you will when you know the facts in detail. Write us

EASTERN BRANCH: 10 E. 11st St.,
New York.
WESTERN BRANCH: 429 Wabash
Ave., Chicago.

The Timken Roller Bearing Axle Co.
CANTON, OHIO





Safeguard Your Car and Passengers

Hartford MIDGLEY Tires

CLINCHER or DUNLOP

Absolutely Non-skid, Non-slip

SAFE, SUCCESSFUL, SOUND, SANE AND SIGHTLY

THE HARTFORD RUBBER WORKS CO.

Hartford, Conn., U. S. A.

NEW YORK, 88 Chambers St. and 1760 Broadway; CHICAGO, 83 Michigan Ave.; BOSTON, 404 Atlantic Ave. and 1020 Boylston St.; PHILADELPHIA, 138 North 10th St.; BUFFALO, 725 Main St.; CLEVELAND, 1831 Euclid Ave.; DETROIT, 256 Jefferson Ave.; DENVER, 1564 Broadway; LOS ANGELES, 1505 South Main St.; SAN FRANCISCO, 423-433 Golden Gate Ave.; ATLANTA, GA., 55 Auburn Ave.

AGENCIES—Geo. W. Perry Co., 9th and Lucas Ave., St. Louis, Mo.; Pittsburg Rubber Co., 913-915 Liberty Ave., Pittsburg, Pa.; Gugler Electric Mfg. Co., 223-225 5th St. S., Minneapolis, Minn.; Mercantile Lumber and Supply Co., 906-908 Baltimore Ave., Kansas City; F. P. Keenan Co., 208 Third St., Portland, Ore.; Salt Lake Hardware Co., Salt Lake City, Utah; Chas. L. Seeger (Compania Mexicana de Vehiculos Electricos), Primera Humboldt 12, Mexico, D. F., Mexico.
SPECIAL AGENTS FOR HARTFORD SOLID MOTOR TIRES IN THE PACIFIC NORTHWEST
Mitchell, Lewis & Staver Co., Portland and Salem, Ore., Seattle and Spokane, Wash., and Boise, Idaho.



THE EXACT RECORD OF THE SEALED BONNET CONTEST

AS TO

Diamond

WRAPPED TREAD TIRES

was four punctures and one regular clincher tire (previously run 4100 miles) pulled partially from a rim by locking wheels at speed.

But the Important Thing Is

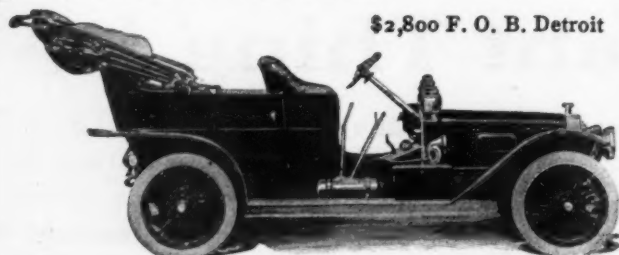
That in the grand total of tire delays for all causes during the contest, 25 SETS of Diamond tires caused 20 PER CENT., and 22 SETS of other tires (representing 6 different makes) CAUSED 80 PER CENT. Not one Diamond tire was rim cut, blew out, or developed a single defect. The Marsh Rim's record was absolutely perfect.

THE DIAMOND RUBBER CO., AKRON, OHIO.

FORD

Undoubtedly the most sensational performance ever accomplished by a motor car was that of the Ford "Six" in the speed-endurance contest at Detroit June 21 and 22—1135 miles in 24 hours, 55 miles in one hour, 412 miles in eight consecutive hours—are all world records.

Two Ford Runabouts also made perfect scores in this severest of all tests—798 miles. Only 25 miles less than former world's record.



\$2,800 F. O. B. Detroit

MODEL K—6-CYL., 40 H.P.

Write for Catalog and Address of your nearest Ford Agent or Branch.

FORD MOTOR CO., 269 Piquette Ave., Detroit, Mich.



Price Re-adjustment

has been Expected, Demanded and
Accomplished by

The Lea Speed Meter

It is **NOT** an experiment marketed by inexperienced builders simply for **CHEAPNESS**.

It **IS** the result of **THREE** seasons' intelligent preparation to meet an inevitable **DEMAND**.

It is a thoroughly **RELIABLE, ACCURATE** and **DEPENDABLE SPEED METER** of the **HIGHEST GRADE**.

Complete Plant Equipment—Perfectly Developed Instrument—Rational advertising expense—Nominal credits—these are the basic conditions making this splendid instrument possible at the Price.

GUARANTEE—"A Perfect Instrument or your Money Back."

Immediate shipments from **Tested Stock**.

50 Mile Combination,	\$35.00
60 " "	40.00
100 " "	60.00

NEW TRADE DISCOUNTS—Previous quotations withdrawn. Ask for "Speed" Book.

WILLIAM S. JONES

Sole Selling Agent

111 N. Broad Street,

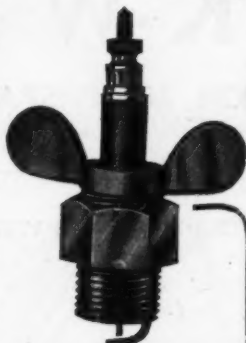
PHILADELPHIA

Try this Spark Plug

THIRTY DAYS AT OUR RISK

Two for the price of one

Let it prove itself on your own car. If you want a plug that is positively interchangeable—no gaskets, no packing, every core ready to drop into position without adjustment, one that centers every time—needs no wrench nor tools, use a



CHARTER PLUG

"No tools but your fingers."

The core is double insulated mica. The joints are beveled, ground like a valve and fit into the base, firm and rigid. No matter how often you remove your core the spark gap will always be the same. Core can be released, to clean or replace, by simply loosening the thumb nut with your fingers. Charter Plugs are made 1/4-inch standard metric and auto car threads. Every part is interchangeable. Price \$2.00 each. Try one 30 days—if it's not what we claim, send it back and your money will be refunded instantly.

Special Free Offer.—To demonstrate the ease and economy of renewing plugs, we will give you free for a limited time, one extra core for each plug ordered. This offer is limited to four plugs.

Send your orders now to get the extra cores free.

CHARTER & CO., 311 Dearborn St., Chicago, Ill.

The Royal "Multiplex" Lamp and Attachment

SOME FACTS

Nine times out of ten an owner has a storage battery, a Dynamo or a Magneto.

Now, then, why should he carry around with him a cumbersome gas tank, or an explosive generator if he can light his lamps with our

"Multiplex" Lamp

on his Battery, Dynamo or Magneto.

The "Multiplex" Lamp gives 30 to 32 candle-powers with reflector on 6 volts.

It will burn from 300 to 400 hours and will give a blinding, dazzling light.

No storm can blow it out.

No matches needed.

No leaky hoses to cause trouble.

Light your lamp from the seat.

Tools needed to install: a screw-driver—that's all.

We have now 4, 6, 8, 10 and 12 volt lamps in stock for immediate shipment.

Renewed bulbs, any voltage up to 12, \$1.25.

Complete outfit—1 Bulb, Attachment, 10 foot cable, Snap Switch and directions, \$2.50 (by mail \$2.60).

Double outfits for 2 searchlights or 2 headlights, \$5.00 (by mail, \$5.20).

Ask any Automobile Supply Store or Garage to get it for you, or we will send it by mail.



The Royal Battery Co., Makers
105-110 Duane Street
NEW YORK CITY

National Sales Corporation
Factory Sales Agents
296 Broadway, NEW YORK CITY

As to Reliability

"There may be a lot of batteries on the market, but there is only one

'WITHERBEE' "

JOHN T. CUTTING
CHAS. H. LARSON

EXCLUSIVE REPAIR SHOP FOR OLDSMOBILES

TELEPHONES (2007) COLUMBUS
(2008) 2008

OLDSMOBILE CO. OF N. Y.

RUNABOUTS, TOURING CARS AND COMMERCIAL VEHICLES

1663 BROADWAY

NEW YORK, JUNE 25, 1907.

Witherbee Igniter Company,
541 West 43rd Street,
New York City.

Gentlemen:—

It might be interesting for you to know that we used a Witherbee No. 66 Storage Battery on our Sealed Bonnet Contest car and had nothing else to fall back on as we felt sure there would be no difficulty with same.

During the four days, our car was driven something over 600 miles. Since then it has been driven about 400 miles and there is absolutely no sign of the battery giving out.

There may be a lot of batteries on the market, but there is only one "Witherbee."

You can figure on our using them as long as they continue to make them as good as they are now.

Very truly yours,

OLDSMOBILE CO. OF N.Y.

Dic. by

68% of the Storage Batteries used in the

Sealed Bonnet Contest were Witherbees

More than four times as many as any other maker. Think it over.

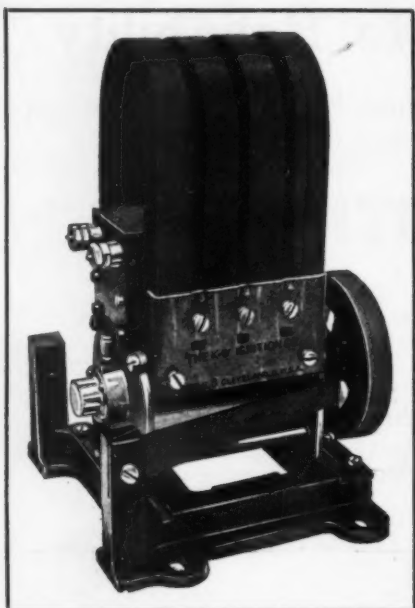
Booklet No. 16 is of interest to every motorist. Free for the asking.

Agents everywhere—3 Factories

Witherbee Igniter Co.

NEW YORK
541 W. 43rd Street
DETROIT
220 Jefferson Ave.

CHICAGO
1429 Michigan Ave.
BALTIMORE
510 Continental Bldg.



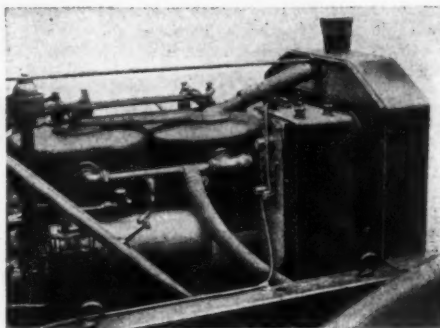
The K-W Magneto

FOR JUMP SPARK ONLY

More Power——Less Fuel

THROW YOUR BATTERIES AWAY.

Will start the engine easily without batteries. Self-regulating—no governor required. Good at all speeds. No moving wires; no brushes; no trouble. Only moving part runs in high duty ball bearings, and will last indefinitely. Belt or friction wheel drive. Absolutely moisture proof.



On a Ford Runabout

Just the thing for your automobile or motor boat.

PRICE: \$35.00 F. O. B. CLEVELAND, OHIO.

WRITE FOR CATALOG.

The K-W Ignition Co., ³⁴Power Ave. Cleveland, Ohio

Also Makers of the VIM Spark Plug

OF ALL THE CARS USING COILS IN THE **SEALED BONNET CONTEST**, 45 Per Cent. WERE EQUIPPED

WITH

CONNECTICUT

COILS

EVERY CAR SO EQUIPPED FINISHED WITH A **PERFECT** SCORE. IT WAS ANOTHER CASE WHERE **QUALITY** WON DESERVED SUCCESS.

SEND FOR CATALOG No. 12B

The Connecticut Telephone & Electric Company, Inc., 59 Britannia Street Meriden, Conn.

296 Broadway, New York, N. Y.
722 Main St., Buffalo, N. Y.

1436 Michigan Ave., Chicago, Ill.
721 Golden Gate Ave., San Francisco, Cal.

22 Lincoln St., Boston, Mass.
209 Blvd. Pereire, Paris, France

MAKERS OF THE FAMOUS Conn. Coil Current Indicators, Volt and Ammeters, Switches, etc.



WEED'S CHAIN TIRE GRIPS

NECESSARY AS GASOLINE

Positive Traction Prevents Skidding

Ask Any Experienced Driver and You
Will Buy a Pair.

SOLD EVERYWHERE

WEED CHAIN TIRE GRIP CO., 28 Moore St., New York



Patented Feb. 5th, 1907. No. 842,950

**All Royal Batteries are now
encased in unbreakable
steel enameled jars.**

**Non-corrosive terminals
and trimmings.**

**New non-corrosive rubber-
covered carrying handles.**

BETTER THAN IT LOOKS

While we take a reasonable pride in the general appearance of the **ROYAL BATTERY** we wish to impress on you the importance of looking below the surface. We know that no Storage Battery on the market is giving the same efficient service as regards current capacity as the **ROYAL BATTERY**. We back up this statement by a broad guarantee that if any of our Batteries prove to be in any way unsatisfactory, due to improper construction, we will replace same within one year.

1908 is going to be a **ROYAL** year and in order to be in line for prompt deliveries your orders should be placed **NOW**.

Our new pamphlet is in the hands of the printer and we want your name so that we may send you a copy as soon as it is off the press.

Let us hear from you to-day.

Royal Battery Company Makers

Office and Factory:

108-110 Duane Street, New York City

NATIONAL SALES CORPORATION

FACTORY SALES MANAGERS

296 Broadway, New York City

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Albany, N. Y.: Albany Hardware & Iron Co., 48 State St.
Atlanta, Ga.: Alexander-Elyea Co., 35 N. Pryor St.
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Distributing Agents.
Bridgeport, Conn.: Bridgeport Automobile Co., 388 Fairfield Ave.
Brooklyn, N. Y.: Bishop, McCormick & Bishop, Halsey St., near Bedford
Ave.
Buffalo, N. Y.: John W. Frey, 722 Main St.
Chicago, Ill.: National Sales Corporation, 1436 Michigan Ave.
Excelsior Supply Co., 237 E. Randolph St.
Cincinnati, O.: Coughlin & Davis, 20 E. 7th St.
Cleveland, O.: Collier & Sayle, 317 Superior St.
Auto Equipping Co., 1151 Huron Road.
Columbus, O.: Ross-Hull Electric Co., 197 E. Long St.
Detroit, Mich.: Miller-Seldon Electric Co., 55 Park Place W.
Elmira, N. Y.: Willys-Crew Motor Co., 117 Main St.
Harrisburg, Pa.: Central Pennsylvania Auto Co., 111 Market St.
Indianapolis, Ind.: Fisher Automobile Co.
Jacksonville, Fla.: F. E. Gilbert, 37 W. Forsyth St.
Lakewood, N. J.: Jos. B. Hoff, Lexington Ave.
Los Angeles, Cal.: Hughson & Merton, Inc., 1040 So. Main St.
Montreal, Can.: Dominion Motor Car Co., Beaver Hall Hill.
New York, N. Y.: Motor Car Equipment Co., 55 Warren St. and 1645
Broadway.
Geo. H. Terry Co., 92 Chambers St.

Omaha, Neb.: Powell Auto Co., 2044 Farnam St.
Peoria, Ill.: Wright Machine Co.
Portland, Me.: Jas. Bailey Co., 18 Free St.
Portland, Ore.: Hughson & Merton, Inc.
Providence, R. I.: Waite Auto Supply Co., 17 Dorrance St.
Combination Ladder Co.
Philadelphia, Pa.: Autolight & Motor Supply Co., 506 N. Broad St.
Frank H. Stewart Electric Co., 35 N. 7th St.
Manufacturers Supplies Co., 418 Arch St.
Sweeten-Crossen Electric Co., 816 Arch St.
Chas. S. Smith & Co., 322 N. Broad St.
James L. Gibney & Bro.
Pittsburg, Pa.: Jos. Woodwell Co., 211 Wood St.
Reading, Pa.: E. S. Youse, 46 N. 5th St.
Rochester, N. Y.: Rochester Rubber Co., 55 Main St.
Syracuse, N. Y.: Syracuse Rubber Co., 214 S. Clinton St.
St. Louis, Mo.: Neustadt Auto & Supply Co., 3948 Olive St.
San Francisco, Cal.: Hughson & Merton, Inc., 438 Market St.
Scranton, Pa.: Chas. B. Scott, 119 Franklin St.
Seattle, Wash.: Kilbourne & Clark Co., 113 Marion St.
Springfield, Mass.: Norcross-Cameron Co., 122 Bridge St.
Tarrytown, N. Y.: Tarrytown Auto & Machine Works, 179 W. Main St.
Toronto, Can.: Rice, Lewis & Son, Ltd.
Washington, D. C.: National Electric Supply Co., 1330 New York Ave., N.W.
Rudolph & West, 1332 New York Ave.



The Glory of Automobiling is Tenfold More Delightful if the Car is Equipped with Woodworth Treads

No other device has ever been invented that will give such convenient, reliable and positive protection to the pneumatic tire and the automobile as the Woodworth Tread. Punctures and other tire troubles that cause wayside delays are not only Costly, but Unnecessary. They can be Avoided. The Pneumatic tire is made of rubber, a substance too tender to withstand the hard usage to which it is subjected. It cannot last long, however careful the running. *The Woodworth Tread Protects the Pneumatic Tire Precisely as a Shoe Protects the Foot.* It bears all the hard knocks, roughs and scuffs, wear and tear of rocky roads, rutty roads, slippery roads, muddy roads, sandy roads and all kinds of roads. It does more to make the running of an automobile Safe and Economical than all other devices ever invented for the purpose. It has Saved Thousands of Tires from Punctures, Prevented Thousands of Accidents, Saved Many a Car from Demolition, Saved Many a Life and May Save Yours. Write to-day for booklet, "Safe and Sane Automobiling." Sizes and prices are as follows:

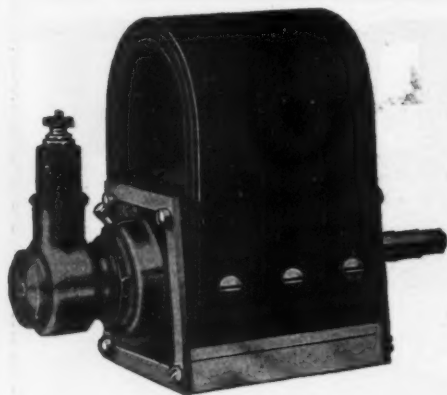
	Each		Each		Each		Each		Each
26x2	\$ 8.00	28x3½	\$14.00	32x2½	\$14.00	34x3	\$16.00	36x2½	\$16.00
26x2½	10.00	30x2½	12.00	32x3	15.00	34x3½	18.00	36x3	18.00
26x3	11.00	30x3	13.00	32x3½	16.00	34x4	19.00	36x3½	19.00
28x2½	11.00	30x3½	15.00	32x4	18.00	34x4½	20.00	36x4	20.00
28x3	12.00	30x4	16.00	34x2½	15.00	34x5	23.00	36x4½	22.00
								36x5	25.00

LEATHER TIRE GOODS CO., NEWTON UPPER FALLS, MASS.

New York Store, 1662 Broadway

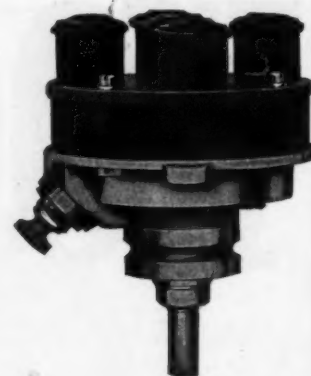
California Distributors: Chanslor & Lyon, San Francisco and Los Angeles.

Montreal, Canada, Distributors: John Millen & Son



Model S Magneto.

A
TYPICAL
PERFORMANCE
OF THE
**Holley
Magneto**

Distributor arranged for
separate mounting.

ADDRESS ALL COMMUNICATIONS TO THE COMPANY.

Ford Motor Company

AUTOMOBILE MANUFACTURERS.



HENRY FORD, PRESIDENT.
JOHN F. DODGE, VICE PRES.
JAMES COUZENS, SECT. & TREAS.

Detroit, Michigan.

WORKS & OFFICE.
COR. PIGUETTE & BEAUBIEN STS.

ADDRESS REPLY TO
MANUFACTURING DEPARTMENT

June 24, 1907.

Holley Bros..

Detroit, Mich.

Gentlemen:

Our Ford, six-cylinder car, which won the 24 hour race Saturday, breaking all world's records, was equipped with the Holley Magneto. During the entire race it gave no trouble of any nature and we obtained uniformly satisfactory results.

Yours truly,

FORD MOTOR COMPANY.

Henry Ford
President.

The above letter is self-explanatory. The Ford Car which won the 24-hour race in Detroit, Saturday, June 22d, was equipped with a Holley Magneto. During the entire race the magneto was in constant use. The battery was never used, and the magneto was not repaired or adjusted in any manner whatever. A severe test like this in public proves conclusively that the Holley Magneto is not equalled by any ignition device in the world. Several of the contesting cars were equipped with foreign-made magnetos.

Holley Brothers Company, Detroit, Michigan



Samuel W. Rushmore

vs.

Badger Brass Mfg. Co.

} in Equity

UNITED STATES CIRCUIT COURT
SOUTHERN DISTRICT OF NEW YORK

On reading the pleadings herein and the motion on behalf of the defendant herein to dismiss Complainant's Bill of Complaint with costs for lack of prosecution, together with the affidavits of Harold S. MacKaye and Lewis J. Keck in support of said motion it is hereby ordered

That the Complainant's Bill of Complaint herein be and the same hereby is dismissed without prejudice to the Complainant, all costs to be paid by the Complainant. New York — June 21, 1907.

Signed,

GEO. C. HOLT, Dis. Judge.

June 21, 1907. Order consented to,

ALFRED WILKINSON,

Atty. Samuel W. Rushmore.

SAMPLES

1908 MODELS

READY

SOLAR LAMPS AND GENERATORS ARE WINNERS

YOU WILL WANT THEM

Watch for ads. for our 1908 Motor Lamp Sensations

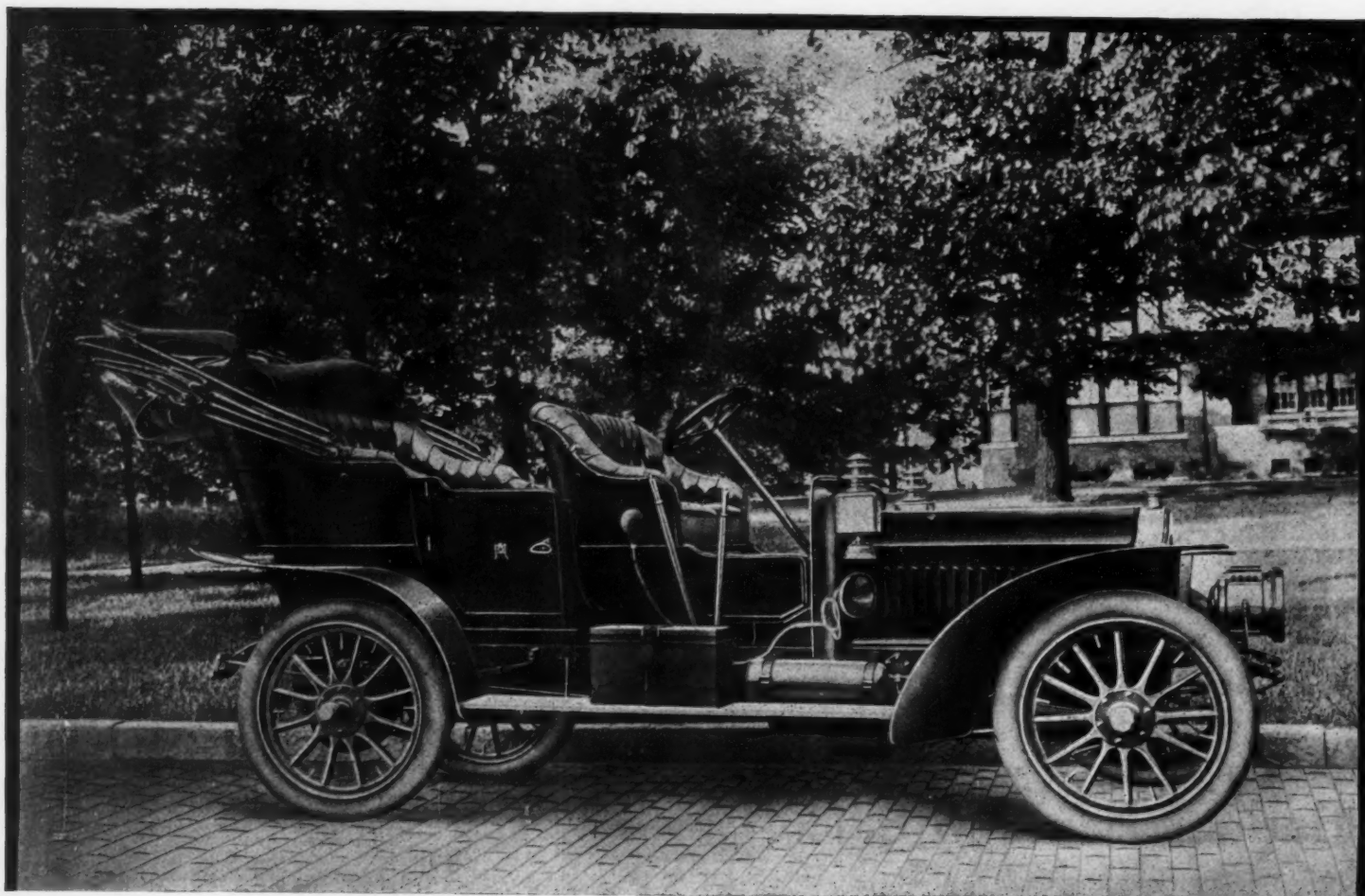
We also have something to say about Solar Lens Mirrors

BADGER BRASS MANUFACTURING COMPANY

Kenosha, Wisconsin

Eastern Branch: 11th Avenue. 36th-37th Streets, New York City

Aerocar



Did you hear about it? —the Model "F"?

Our big forty-horsepower, water-cooled car—The car that will start on the high gear from almost anywhere—The machine that will run uphill the same as on the level—The car that is selling where foreign-built cars have sold heretofore? Did you?

For four days it ran without touching a part. 600 miles were covered and everything sealed. The gasoline and oil were replenished—the crank given a turn—and day after day it covered the course, making every control on exact time.

The official starter had placed his seal upon everything that would open. Not only the bonnet—but the coil box—the transmission—the springs—the wheels—yes, and even the tool box itself.

But it made no difference with Model "F." It is not accustomed to stopping along the road. Adjustments are seldom necessary. It is "Built for Service," and it gives it.

If you want a handsome—reliable—powerful—easy riding Touring Car—and want to save about \$1,200, ask about Model "F" at \$2,750.

POINTS TO THINK TWICE ABOUT

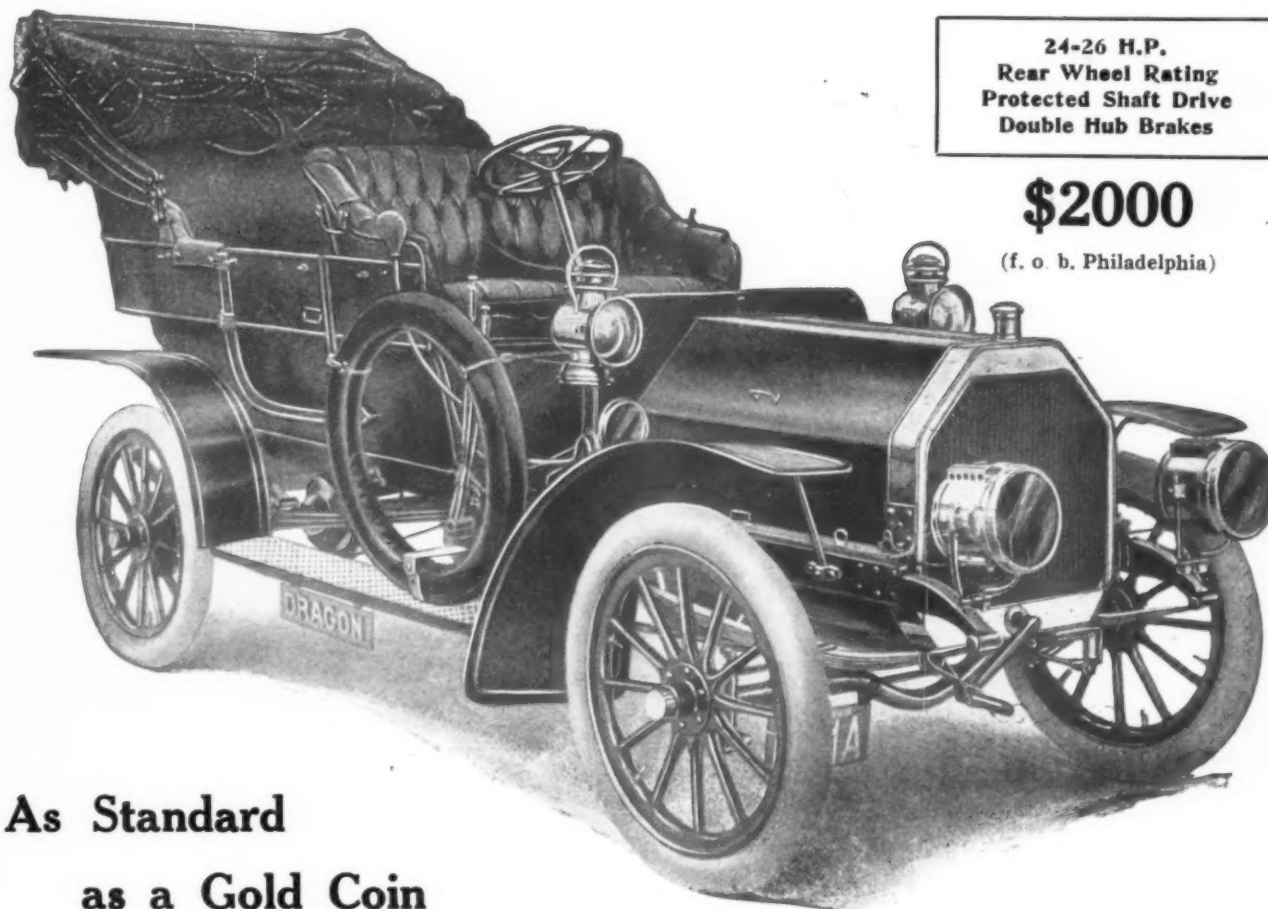
- Four-cylinder vertical motor.
- 5-inch bore, 5-inch stroke.
- 40 horsepower.
- Water cooled.
- Jump spark ignition with storage battery, and auxiliary dry cells.
- Float feed carburetor.
- Automatic mechanical oiler.
- Spark and throttle levers on steering wheel.
- Multiple disc clutch.
- Sliding-gear transmission, with 3 speeds forward and reverse.
- Horizontal shaft drive.
- 115-inch wheel base.
- 4 x 34 inch tires.
- Seats five persons.
- Royal Blue finish with "Cream" gear.
- Black leather upholstery.
- \$2,750 f.o.b. Detroit.

THE AEROCAR COMPANY Member **DETROIT, MICH.**

A.M.C.M.A.



DRAGON



24-26 H.P.
Rear Wheel Rating
Protected Shaft Drive
Double Hub Brakes

\$2000

(f. o. b. Philadelphia)

As Standard as a Gold Coin

The makers of the **DRAGON**—Touring Car and Roadster—have no hankering after novelty for novelty's sake alone. They started out to make a standard car. The present demand for their product shows how the public appreciates the **standard** idea.

The **DRAGON** is a unit car. Each part of it is designed and constructed in relation to every other part. [And every part is a tried and tested feature of standard automobile practice and construction.

This is why the **DRAGON**—Touring Car and Roadster—finishes in the high-powered, high-priced class in every contest it goes into.

This is why the **DRAGON** moves smoothly and silently along, mile after mile, day in and day out, and makes a **DRAGON** enthusiast of every man who buys one.

This is why the **DRAGON** sells so easily. The man can see it's what he wants—a simple, strong, full-powered, reliable car.

WRITE FOR INFORMATION TO

THE DRAGON AUTOMOBILE COMPANY

Member A. M. C. M. A.

30th, 31st and Chestnut Streets, Philadelphia

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1337 Michigan Avenue, Chicago
101 Burnside Place, Montreal
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'B'LINE

OIL-CREASE GUNS

PUTS THE LUBRICANT WHERE YOU WANT IT AND IN THE EXACT
QUANTITY WANTED

EFFECTIVE - ECONOMICAL - PRACTICAL

Absolutely Non Leakable
Never Wears Out—ALL METAL
No Washers of Any Kind

They are of the finest workmanship, perfectly adapted to handle lubricants of every description, and are constructed on lines heretofore considered impossible. The fitting of the pistons without leather, cork or other packing, the easy one-hand manipulation, and the absence of leakage, never fail to surprise the examiner and give pleasure to the operator.

The Boston Combination

Will handle the most solid lubricants in use as readily as it will the lighter ones.

Lock nut moves freely with piston unless engaged by thread. In this position the piston is driven forward by screw motion and exerts a pressure that will handle the heaviest greases.

The
Handy Gun
FOR
Unhandy Places

OIL CUPS, GEAR BOXES
and TRANSMISSIONS REACHED
WITHOUT THE WASTE OF A
SINGLE DROP.

MECHANICALLY PERFECT!

"We want to say right here that we never saw anything so well made before. We showed them to our mechanics, they consider the fit of the piston as something wonderful."

JOSEPH DIXON CRUCIBLE CO.

Write for full particulars and prices

THE RANDALL - FAICHNEY CO.
KEANY SQUARE BUILDING
BOSTON, MASS., U. S. A.

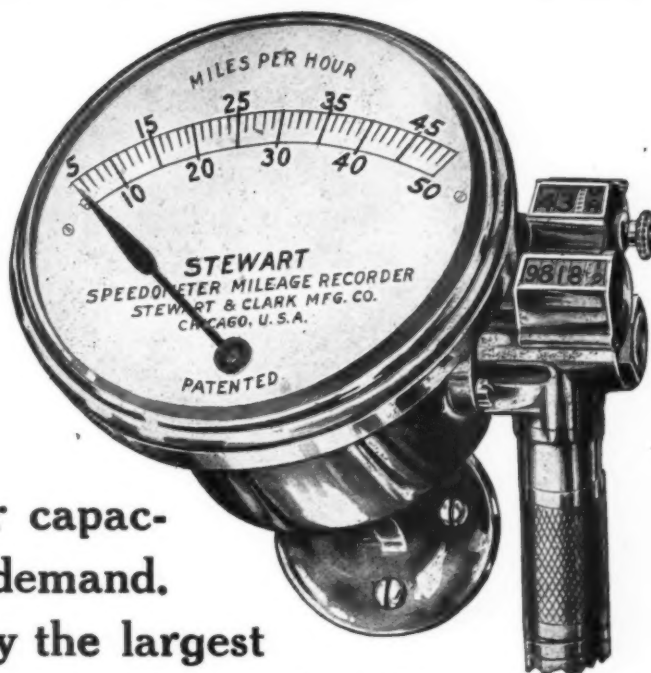
"HITS THE
BULL'S EYE OF
POPULAR FAVOR"



THE "BACK-BAY"
THE "BOULEVARD"
THE "BROADWAY"

Stewart Speedometer

No one who has thoroughly investigated the STEWART SPEEDOMETER has failed to be convinced of its superiority. Its adoption by leading motorists has only been limited to our capacity for supplying the demand. Our new plant---capacity the largest in the world---is now thoroughly equipped. We can make prompt shipments on our 50 and 60-mile instruments.



We are told our new catalogue, just issued, is the handsomest and most comprehensive book on speedometers yet published. It illustrates and describes the interior mechanism so that all may know why the "Stewart" is sought by those experienced in speedometer matters. Copy for the asking

Prices

No. 3, Combination Speedometer-Odometer (Full Size Dial 4-in.), 50-Mile	\$ 40.00
No. 4, " " " " " 60-Mile	60.00
No. 5, " " " " " 90-Mile	75.00
No. 6, " " " " " 120-Mile	100.00

Stewart & Clark Manufacturing Co.

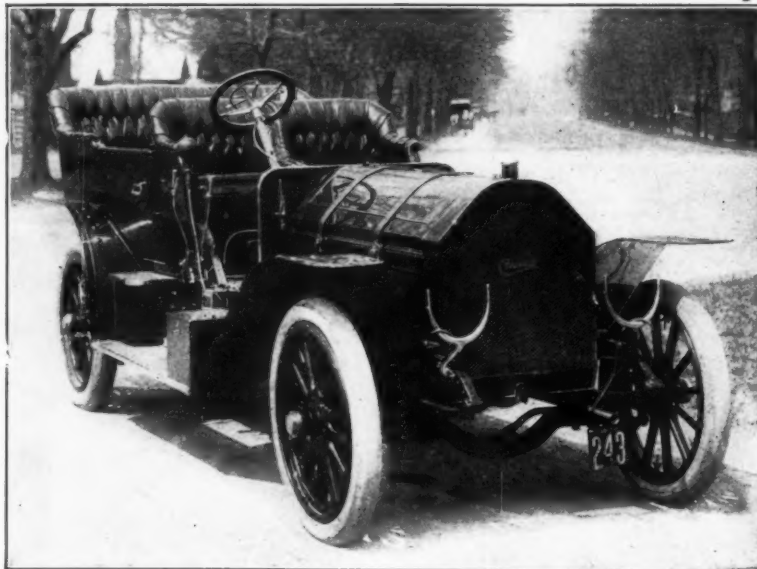
506 DIVERSEY BOULEVARD, CHICAGO, ILL., U. S. A.

The Victorious, *Chadwick* SIX Great

FOR months we have been advertising this fact in the leading automobile publications, and in the greatest hill-climb America has ever known—up Giant's Despair Mountain, Wilkes Barre, Decoration Day, all our claims were conclusively proved to be correct, for the **Great Chadwick Six** met and defeated all comers, and so complete was the victory that the other cars (foreign and American) in the race could justly be termed "also rans."

WE entered but one car, which was our regular demonstrating automobile and which is for sale to anyone. We made no special preparations and we won the two most important touring car events and made the fastest time on this hill that has ever been made by a gasoline touring car. We took this same touring car and entered it in the free-for-all, against Vanderbilt Cup Racers, and finished only three seconds behind two specially built machines, which are not stock cars nor sold to the public.

IT was universally conceded by everyone that the **CHADWICK** made by far the most wonderful performance at the hill-climb, because notwithstanding its terrific power and speed, it ran quietly and easily. Remember, this very car that won this record is for sale, at the regular list price, or if you prefer, its duplicate, because it is not a specially built machine, but one of our regular stock, 1908 modeled.



The above is from a photograph of identical victorious Great Chadwick Six.

Ninth Event

	TIME	H.P.	COST
Great Chadwick Six	2.02 2-5	50	\$5500
Thomas Special	2.05 2-5	60	?
Stearns	Did not finish		

Tenth Event

Great Chadwick Six	2.07	50	\$5500
Matheson	2.19	60	\$7500
Matheson	2.24 4-5	50	\$5000
Fiat	2.35 4-5	35	\$9000

FREE FOR ALL

Matheson Vanderbilt Cup racer specially geared, only three seconds under time made by the Chadwick Stock Touring Car with standard gear.

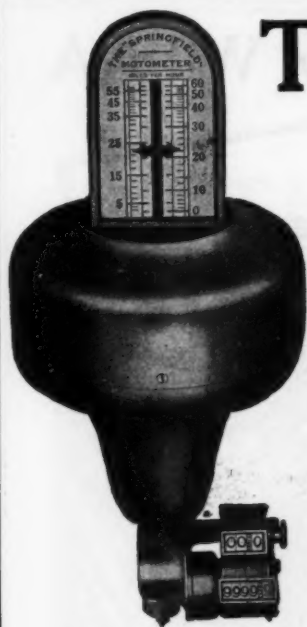
A ride in the Great Chadwick Six will demonstrate that a new field of motoring pleasure awaits you.

Agencies in many large cities or write to Dept. S.

CHADWICK ENGINEERING WORKS

32d and Spring Garden Sts.

Philadelphia



The Springfield Motometer

"The Speedometer that has proved it"

Unless a speedometer is *accurate* and *stays accurate*, it is *worthless*.
To *be* and *remain* accurate is its *whole duty*.
Every buyer has a right to demand *proof*. Anyone can *claim it*.

If you *see* with your own eyes an *indisputable* demonstration of accuracy—holding the watch and counting the revolutions *yourself*, not on *one* but on *three* Motometers *simultaneously*—that is *proof*.

If, back of this, there is *reputation*, gained by *seasons* of *sale* and *use* under all conditions—that is also *proof*. We offer *both kinds*. The first at *all the big shows*—the second *every day* and at *all the time*.

Do you want a speedometer that you can *know* is right? Then specify the "*Springfield Motometer*."

THE PRICE IS RIGHT

Costs *less* than any other speedometer with a *reputation*.

Costs *no more* than the experiments.

For any car made, complete with fittings

50 Mile Pattern, \$45.00

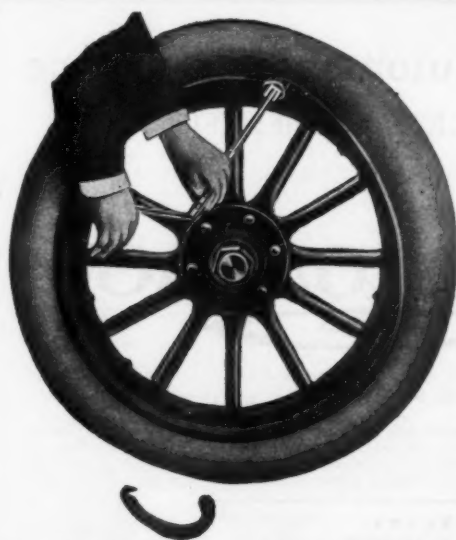
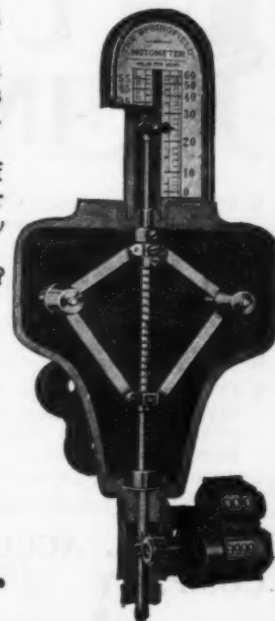
60 Mile Pattern, 50.00

Send for Catalog and Booklet, "*Facts*."

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Established 1865

Incorporated 1883



"EVER READY"

== TIRE TOOL ==

Rolls the most obstinate tire on or off in a few minutes time, with remarkable ease.

No expert knowledge or practice required to operate it, simply insert the tool, turn the handle slowly and the result is accomplished.

Cannot possibly pinch or injure the inner tube. This feature alone insures a saving of many times its cost.

Must be seen to be appreciated.

ROLLING THE TIRE OFF AS SIMPLE AS IT LOOKS

Price complete, including clamp, \$8.00

Call at our show rooms and we will gladly give you a practical demonstration. If you cannot come to us, let us send descriptive catalogue to you.

WHEN FOLDED IT CONVENIENTLY FITS IN ANY TOOL BOX.

Address Department 9

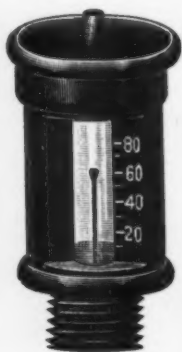
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Uptown Office and Show Rooms, 2128 Broadway. Factory, 316 Hudson St.,
NEW YORK CITY



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WE ALSO MANUFACTURE
"EVER READY" VULCANIZERS
SPEEDOMETERS
AND AUTOMATIC STARTERS
ASK ABOUT THEM.



You Can Watch Your Battery With A RADIUM CURRENT INDICATOR

- ¶ Adapted for automobiles, motor boats, and all gas and gasoline engines. Will positively indicate whether your battery is fully charged.
- ¶ Will positively indicate the available current at all times.
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- ¶ The Radium Storage Battery with current indicator is an absolute necessity to every autoist and power boat user; and no automobile or motor boat is thoroughly equipped without a Radium Storage Battery with current indicator. The greatest stride forward since the invention of the Storage Battery.

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CORNELL GARAGE
PORTABLE



Regular
styles at
moderate
prices ready
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ate ship-
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Real Automobile Insurance

YOU GET THE BENEFIT NOW

If you adopt the policy of keeping your car in a

CORNELL GARAGE

PORTABLE

You can watch it and protect it from unauthorized use by not too scrupulous chauffeurs and others, and safe from **FIRE RISKS** and damage through neglect.

Built in style of architecture to match your residence, of Cornell interchangeable sections, which may be erected and ready for occupancy same day of delivery without nail or screw by any help of ordinary intelligence. Keeps your car free from weather, and the permeating and destructive odors of public garages and stables. We can furnish Garages, large or small, at almost any price within reason.

ALLISON BUTTS
Attorney and Counsellor
220 UNION ST., Poughkeepsie, N. Y.

Poughkeepsie, N. Y., May 28, 1907

Wyckoff Lumber Mfg. Co., Ithaca, N. Y.
Gentlemen—The Automobile Garage No. 3 was received in due time and I now have it put up. It meets my expectations in every particular and has been admired by everyone who has seen it. It certainly is a very attractive and artistic building.
Very truly yours,
ALLISON BUTTS

Special de-
signs and
specifications
submitted
and orders
executed
promptly.

Write for Catalogue and Prices.

WYCKOFF LUMBER & MFG. CO.,

Makers of
PORTABLE GARAGES, COTTAGES, CAMPS, STABLES, TOOL-HOUSES, ETC.

Department T. A. ITHACA, N. Y.

"It's Nice to Know How Far You Go; and This Will Tell the Speed — also"

The Veeder TACHODOMETER

Is the Scientist's Speed Indicator, applied to automobiles. Used in the greatest laboratories and shops, time-tried, reliable, and now fitted for automobile use.

One shaft with paddle-wheel permanently attached forms the SINGLE moving part. Gravity and centrifugal force are the only other elements of control. Until these natural laws change the Veeder Tachodometer must remain *permanently and absolutely accurate*.

Of the many principles on which speed indicators may be designed we have chosen the liquid centrifugal, and the results are so satisfactory and so positively accurate that this system rises

SUPERIOR TO ALL OTHERS

Because there are NO SPRINGS NOR VARIABLE ELEMENTS

NO DELICATE MECHANISM.

ONLY ONE MOVING PART.

CAN BE ACCURATELY SET TO ZERO by the operator at any time. No other can.

IT IS PRACTICALLY IMPOSSIBLE TO WEAR IT OUT.

NEITHER TIME, USE, FRICTION NOR TEMPERATURE CAN CHANGE ITS ABSOLUTELY ACCURATE READINGS.

IT DOES NOT SWING NOR WOBBLE, but follows exactly and instantly every slightest variation of speed.

SHOWS SPEED FROM ZERO TO 62 MILES PER HOUR.

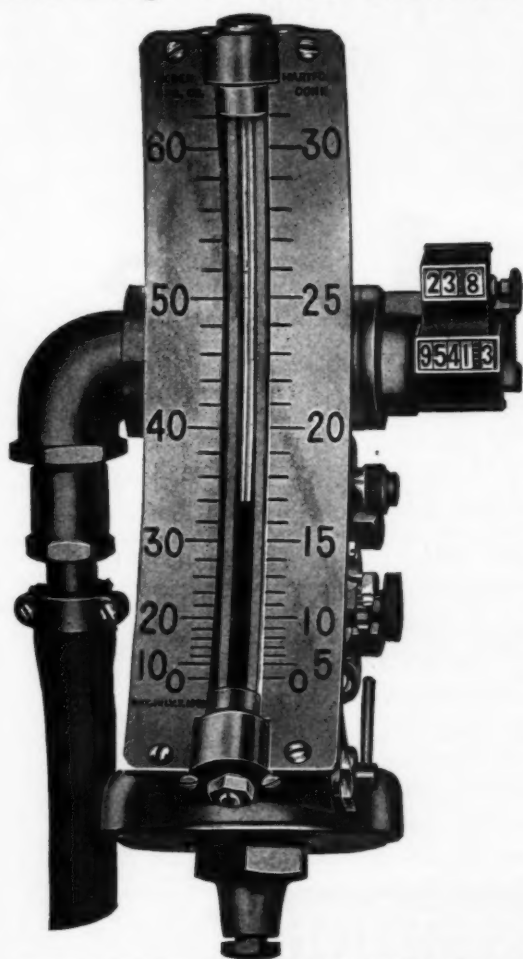
CAN BE READ FROM A DISTANCE AT A GLANCE.

CAN BE PLACED ON DASH, IN TONNEAU, or in LIMOUSINE.

REGISTERS TOTAL DISTANCE, AND FOR EACH TRIP.

No instrument in which springs are employed (and practically all other speed indicators contain springs) vary with age, temperature, and especially with the friction of moving parts; and only by special lubrica-

tion, not found in the ones you buy, can correct readings be obtained even for a short time. Supplied with attaching fixtures for all makes of automobiles. In ordering state make and model of car; also year of manufacture.



PRICE, COMPLETE, READY TO GO ON ANY CAR, \$75

THE VEEDER MFG. CO.

22 SARGEANT STREET,

HARTFORD, CONN.

Manufacturers of Cyclometers, Odometers, Tachometers, Tachodometers, Counters and Fine Castings.

The Voice of the Road

10,000 Filled Tanks
Prest-O-Lite
 Ready to Loan to
 Responsible Dealers
 Everywhere



YOU
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 HAVE TO WAIT

Prest-O-Lite IS EVERYWHERE

Over 1200 replacing stations where Prest-O-Lite users can have their Prest-O-Lite tanks exchanged without a moment's delay.

OUR FIVE MAIN STATIONS have 10,000 filled tanks of Prest-O-Lite ready to loan to responsible dealers everywhere—a filled tank of Prest-O-Lite is ready for you at nearly every garage from the Atlantic to the Pacific.

CAUTION Prest-O-Lite Gas Tanks are being imitated by concerns who are putting out tanks like Prest-O-Lite Gas Tanks of two years ago. Your Prest-O-Lite Tank has all the new improvements shown most practical by two years' more experience. Prest-O-Lite tanks are thus much more valuable than imitations which cannot be supplied promptly. In exchanging yours see that irresponsible dealers don't keep your Prest-O-Lite Tank and give you a cheap imitation. Be sure to see the name Prest-O-Lite on the tank you get back to protect yourself.



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MAIN STATIONS

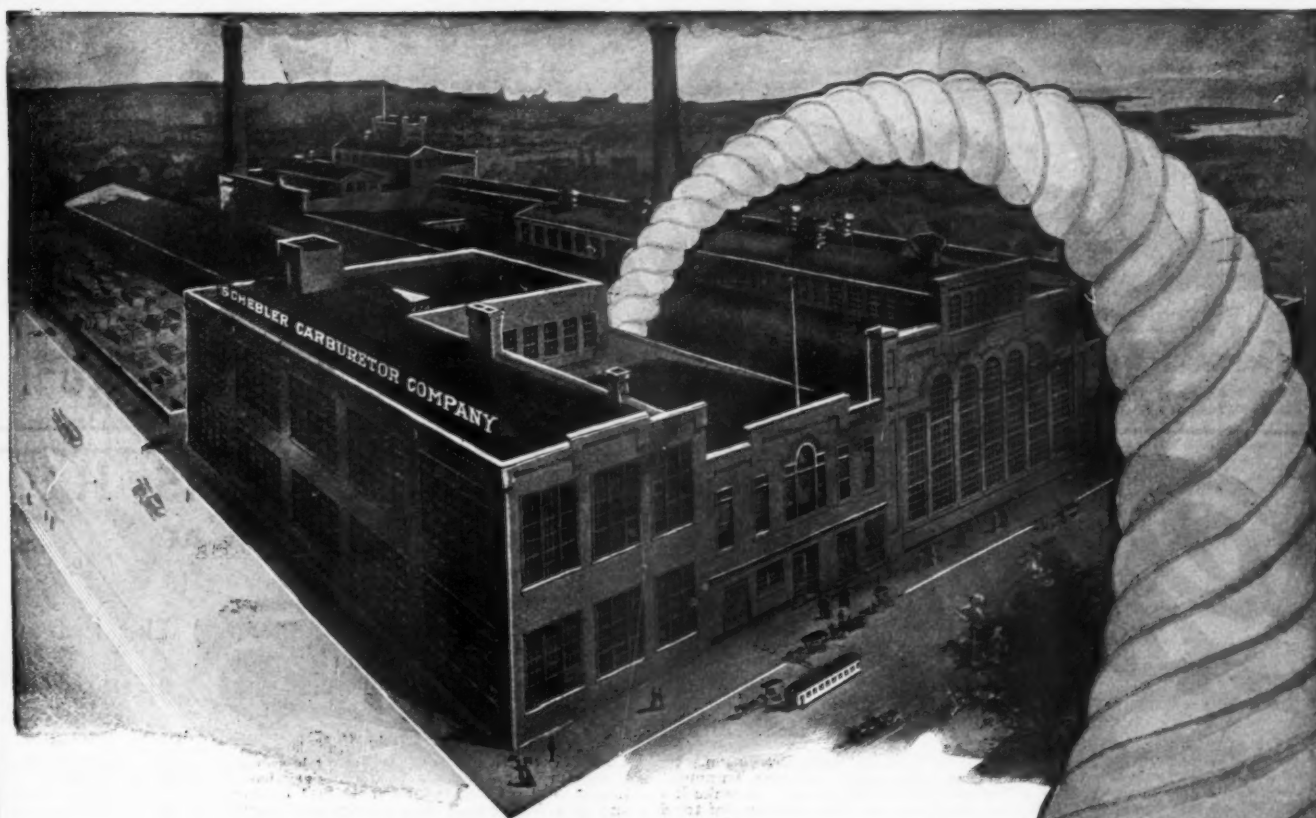
New York, 1904 Broadway

Indianapolis, 22-24 S. East St.

Boston, 541 Tremont

Or at Any Responsible Dealers or Garage.

San Francisco, Point Richmond
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The Output of the New SCHEBLER CARBURETER

Plant is 20,000 Per Month

All orders filled the day they are received. We can take care of the Carbureter business of the world without any trouble whatever.

Schebler Carbureters are high in public estimation because of their quality—their never failing dependability in fulfilling every requirement of perfect carburation.

Write for proofs—full particulars and prices.

Wheeler & Schebler, Indianapolis, Ind.

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Pope Manufacturing Co., Hartford Conn.		Schuman Carriage Co., Honolulu, T. H.
Chas. E. Miller, 824 Main St., Buffalo, N. Y.		Canada Cycle Motor Co., Toronto Junction, Can.
Chas. E. Miller, 406 Erie St., Cleveland, O.		McCulloch & Boswell, Winnipeg Man.
Chas. E. Miller, 357 2-3 Jefferson Ave., Detroit, Mich.		Geo. Neil & Co., 38 Fenchurch St., London, Eng.
E. B. Belcher, 26 Green St., Malden, Mass.		Sail-Plintze Co., Newark, Ohio.
Hub Automobile Exchange, Dorchester, Mass.		Smith Electric Engineering Co., Wattown, N. Y.
J. W. Lathrop Co., Mystic, Conn.		Kansas City Motor Car Co., Kansas City, Mo.
National Elec. Supply Co., Washington, D. C.		Neustadt Auto & Supply Co., St. Louis, Mo.
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G. D. Thorndike, State of Maine Agt., Portland, Me.		
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The Autolight & Motor Supply Co., 508 N. Broad St., Philadelphia, Pa.		
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20,000 Per Month

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Locomobile Company of America, Bridgeport, Conn.

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Philadelphia, 449 N. Broad St. Chicago, 1334 Michigan Ave.

The Most Reliable American Car

Columbia

Mark XLIX 40-45 H.P. Touring Car



The Leader
of Its Class

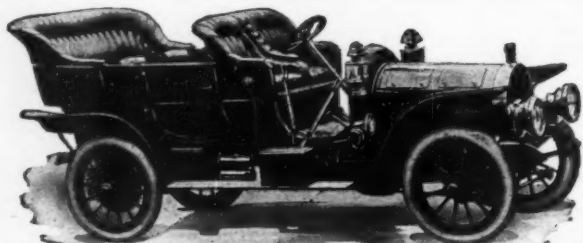
Mark XLIX-40-45 H. P.

Embodies absolutely the best things possible in motor car construction. Compare this car with others in the same class selling at nearly twice the price and note that in mechanical equipment, general design, painting, trimming and appointments, no other automobile, whether foreign or domestic, is more carefully or honestly built. No expense has been spared to make it the Leader of Its Class and the materials that enter into its construction are the best procurable. It is built to meet any and all conditions of touring and is a fast, roomy and comfortable seven-passenger touring car of extremely easy riding qualities. **Standard Touring Car, \$4,500. Limousine, \$5,500.**

New York Branch: Electric Vehicle Co., 134-136-138 West 39th St.
Chicago Branch: Electric Vehicle Co., 1332-1334 Michigan Ave.
Boston: The Columbia Motor Vehicle Co., Trinity Pl. and Stanhope St.

Catalogues of this and other
models on request.

**ELECTRIC VEHICLE CO. HARTFORD
CONN.**
Member A. L. A. M.



An Astounding Performance

Perfect score in Sealed Bonnet Contest of A. C. A. at New York.

And, without breaking seals or making adjustments of any kind.

A fast run to Cleveland from New York over rough roads (691 miles in 33 hours 20 minutes). Time from Buffalo to Cleveland, 6 hours 30 minutes (202).

Seals examined at Cleveland by Mr. Asa Goddard, Secretary of Cleveland Automobile Club and found intact. This car has now made 1890 miles with absolutely no attentions except occasional doses of gasoline, oil and water.

It seems almost unnecessary to say that the car is a

Royal Tourist

THE ROYAL MOTOR CAR COMPANY

Member A. L. A. M.

CLEVELAND, OHIO



"PRER OF THEM ALL"
**HICKS
Speed Indicator**
(MODEL D)

COMPLETE, COMPACT,
ACCURATE, HANDSOME.
NO WABBLING of Index
Hand. SIMPLE AND
SCIENTIFIC CONSTRUCTION.

Four Sets Ball Bearings, Speed
Indicator, Trip and Total Distance
Recorder and Clock all
on One Dial.

Price \$20.00, Complete
Fully Guaranteed.

Send for Illustrated Booklet
Write Us
About Agency Proposition.

**HICKS SPEED INDICATOR CO., 920 UNION ST.
BROOKLYN, N. Y.**

The Ranger Roadster

is built for every day use on any
road at the lowest cost of main-
tenance we guarantee the result,
and our cars are ready to
demonstrate at any time

what the Ranger
is capable of
doing under ac-
tual road con-
ditions. Write
for our catalog
and agent's
proposition.

**Ranger
Motor Works**
4515-17 Evans Ave.
Chicago, U.S.A.



DID YOU EVER WISH YOU HAD MORE POWER THAN THE OTHER FELLOW

When he passed you, and you had to take all the dust, while he was driving a car that had a 2-cylinder engine as your car has?

Maybe you had to go up the next short grade on slow speed because you had five people in the car.

If you owned a **GALE** this would never have happened. Our nearest agent will prove this to you

WESTERN TOOL WORKS,

110-118 KELLOG ST.,

GALESBURG, ILL.



TO KNOW What To Do and How To Do It

When your gasoline motor or gas engine gets stubborn, can be quickly learned by owning a copy of the

Practical Gas Engineer

A Book of 172 Pages Neatly Bound in Cloth

By E. W. LONGNECKER. Twelve years' constant experience with Hydro-Carbon Engines. SIXTH EDITION JUST OUT and selling rapidly. First and Second Editions exhausted in thirteen months.

Special Chapter on Automobile and Motor Boat Engines.

Sent Postpaid on Receipt of Price, \$1

Book Dept., The Automobile, Flatiron Bldg., Madison Sq., N.Y.

WHAT IS BEING DONE BY THE

Wayne

In the 24-hour endurance contest held at the State Fair Grounds, Detroit, Michigan, on June 21st and 22nd, under the sanction of the A. A. A., the Model N Wayne beat the World's Record by 132 miles, the Wayne's total mileage for the 24 hours being 958 miles against the old World's Record of 826.

On the same date, June 22d, in the 100 mile endurance contest held by the Detroit Automobile Club, the Model N Wayne Roadster, driven by Mr. Geo. Lane, FINISHED WITH THE ONLY PERFECT SCORE IN ITS CLASS. Only two other cars, both of them in a different class and considerably higher priced, finished with a perfect score.

We want some more good agents in territory where we are not represented

30-35 H. P., 5 passenger Tourist.....\$2,500
30-35 H. P., Gentlemen's Roadster.....\$2,500
35 H. P., 5 passenger Touring Car.....\$2,500
50 H. P., 7 passenger Pullman Car.....\$3,500

Descriptive Catalogue Sent Anywhere Upon Request

WAYNE AUTOMOBILE CO.

Dept. 7

Detroit, Mich.

THE MASON

"THE FASTEST AND STRONGEST 2-CYLINDER CAR IN AMERICA"

At the first hill-climbing contest of the Iowa Automobile Club held at Des Moines on July 4, 1906, The Mason won easily against all competitors, including 4-cylinder car listing at \$4,000, and rated at 40 H. P.

Built for any road, and especially for rough and hilly country roads. Exceptionally strong construction.

24-H.P.; 2-cylinder opposed motor; cylinders, 5x5; weight, 1,750 lbs.; seat 5. Takes any hill on high gear. Speed, 4 to 40 miles per hour. Price, \$1,350.

Made by the MASON MOTOR CAR CO., East Fifth and Vine Streets, Des Moines, Iowa.

Address: MASON CAR SALES CO.

310 W. 9th St.

Kansas City, Mo.

The "Blomstrom Thirty"

THE MOST FOR THE MONEY EVER OFFERED

4 Cylinder, Vertical, 30 H.P. PRICE \$2,250

Write for Catalogue—Dealers, Get Busy

The Blomstrom Manufacturing Co.
Detroit, Michigan, U. S. A.

RALPH TEMPLE, 309-311 Michigan Ave., Chicago,
Agent for Chicago and Middle Western States.

An Ideal Car for
Business and Professional Men

The FEDERAL

Model C Runabout, \$600

A car for every day service, constructed upon the simplest lines to attain the maximum of power, speed and durability, and needs no mechanical knowledge to operate it successfully.

It is a car of style and practicability.

If you are contemplating the purchase of a car, this is the car for you to buy.

Dealers, this is the car for you to handle.
Write for full particulars.

Federal Automobile Co.
40th St. and Wentworth Ave., Chicago, Ill.

The Auto Car Equipment Co.

Make the Highest Powered
Limousines in the
Market



6-Cyl., 60-H.P., Seating 7 to 10 People. Elegant, Luxurious.

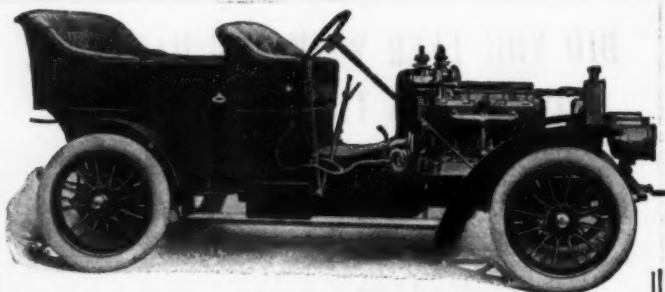
Also Manufacturers of

**Trucks, Omnibuses and Sight-
Seeing Cars—Gasoline and Electric**

ADDRESS

THE AUTO CAR EQUIPMENT CO.

87 Edward Street, Buffalo, New York



Model 19

"St. Louis" Motor Cars

Ⓐesop tells us of a man who could give a skillful imitation of the nightingale. One man refused to listen, because, as he said, "I have heard a real nightingale."

Ⓐhe was right. Now, why buy an imitation when the original "*Rigs That Run*" cost no more and are infinitely better?

Three four-cylinder models

Catalogs free

"St. Louis" Motor Car Co.
PEORIA, ILL.

• Member American Motor Car Manufacturers' Association, N. Y. •

RETAIL PRICE, \$2.00



Comfortable Dusters

THAT DEFY
DUST

At Popular Prices

OUR coats are made in the latest French style out of Pongee cloth and light and dark shades of linen goods for both

**Men and
Women**

Send Check or Money Order telling us which of the two grades you wish, with your breast measurement and height, and we will send garment by Prepaid Express. If same does not please, your money will be gladly refunded. In this way you save the middle man's profits, which are enormous.

Silk Pongee, \$5
Light or dark
shade linen cloth, \$2

Write today. Don't wait

OURS ARE EXCLUSIVE
DESIGNS

Smith, Crary & Davidge
178-9 Water St., Binghamton, N. Y.

DORRIS



Model B

ONE MODEL FOR ALL

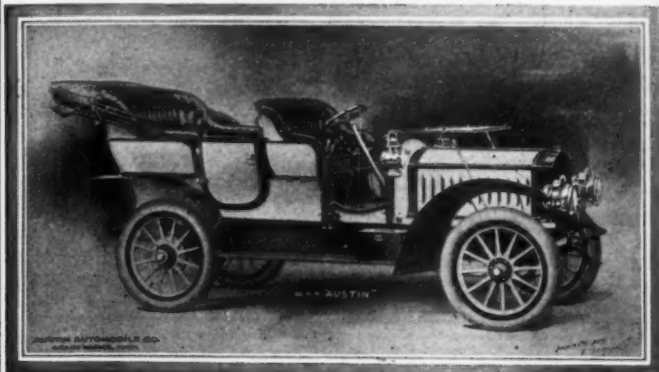
30 Horse Power

Runabout	-	-	\$2500
Touring Car	-	-	\$2500
Limousine	-	-	\$3500

SILENT POWERFUL SIMPLE
EASY OF CONTROL

Dorris Motor Car Co.
ST. LOUIS

AUSTIN



60 H.P. TOURING CARS, 90 H.P. TOURING CARS,
RUNABOUTS, LIMOUSINES. RUNABOUTS, LIMOUSINES.

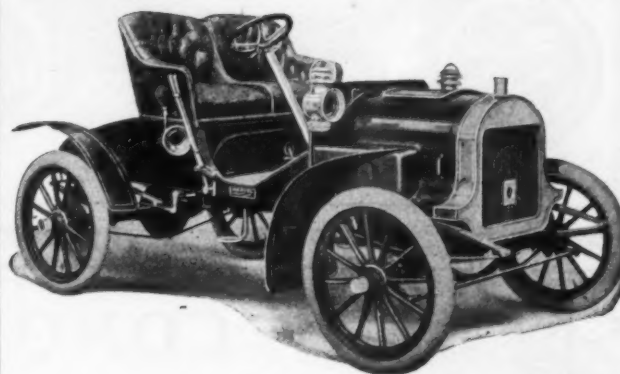
PERFECT IN ALL MECHANICAL DETAILS

☐ We make more of the complete car in our own factory than any other American Manufacturer. The axles, gears, steering knuckles and all vital parts are exceptionally large and strong, insuring safety and durability.

Send for catalogue giving full details of our many special and improved features.

AUSTIN AUTOMOBILE CO., Grand Rapids, Mich., U. S. A.

The MARVEL Automobile Roadster



The Greatest Value on the Market
A Car of Superior Merit
Gives Most Satisfactory Service
WRITE FOR FULL PARTICULARS

Marvel Motor Car Co.
284-290 Rivard St., DETROIT, MICH.



**Stanhope
\$800
Runabout
\$600**

**THE
JEWEL**

JEWEL argument is not a matter of superlatives nor extravagant, boastful claims. It is based upon these definite points:

There is no other gasoline car that is so easily controlled.

There is no other gasoline motor so simple.

There is no other gasoline car that costs so little for repairs and maintenance expense.

Let us give you the whole story of JEWEL construction and equipment in our free booklet. It fully describes the JEWEL Valveless, Two-cycle engine, and shows why experience, rather than advertising, has made the JEWEL famous.

FOREST CITY MOTOR CAR CO.
136 Walnut St., Massillon, Ohio, U. S. A.

A CAR FOR SERVICE

“Servitor”

Something New and Distinctive

in a high-powered “Gentlemen’s Roadster.” Its graceful lines and harmony of coloring make it a thing of beauty. There is nothing overlooked to make this a most desirable car for men of moderate means.

The mechanical construction is as near perfection as is possible to make it. Every pound of weight is eliminated by the use of our system of air cooling, no radiators, pumps or tanks to leak or get out of order. Get our interesting catalog giving full details.

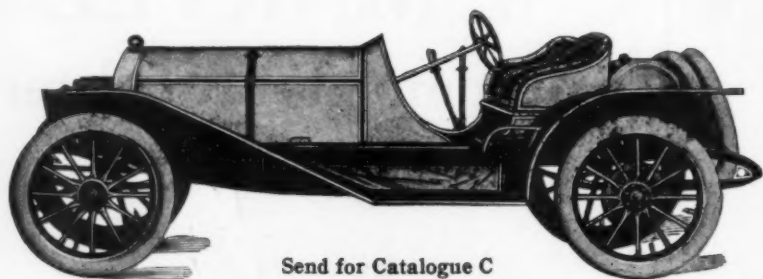
We still have some good territory open. Great chance for reliable agent to make fine income. *WRITE for particulars.*

THE BARNES MANUFACTURING CO.

1400 COLUMBUS AVENUE,

SANDUSKY, OHIO





Send for Catalogue C

THE COLT Six-cylinder Runabout

\$1,500 { Bore 4½"
Stroke 5"

Weight, 1,800 lbs. "Forty" H.P.
"Mile-a-minute"

COLT RUNABOUT CO.

Office, 52 Broadway Factory, Yonkers
NEW YORK



CONOVER WIND SHIELD

(Patent Applied For)

ENHANCES THE APPEARANCE OF ANY CAR

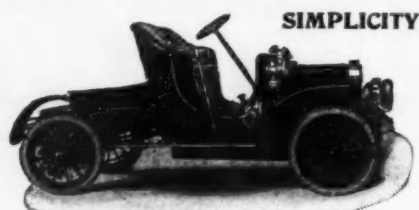
The only folding wind shield that is automatically held open or shut, or that can be operated by the driver with one hand, without stopping car. No adjustments of bolts or nuts.

Send for Fully Illustrated Circular with Prices

THE CONOVER MOTOR CAR CO., - Paterson, N. J.

NATIONAL SALES CORPORATION, Factory Sales Managers, 296 BROADWAY, NEW YORK, N. Y.

"CARTER CAR"

F
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SIMPLICITY

T
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NO GEARS TO STRIP—
NO CLUTCH TO SLIP

MOTOR CAR CO.

DETROIT, MICH.

"BUSINESS"

The "Atlas" Runabout

¶ The simplest engine ever made, with a four years test behind it. Fast, easy, flexible and handsome. A remarkable car. \$1400 worth of vim and "get there."

ATLAS MOTOR CAR CO.,

Harry A. Knox, Pres.

SPRINGFIELD, MASS.

THE GARFORD COMPANY, Elyria, Ohio

Makers of the

CELEBRATED "GARFORD" TOURING CAR CHASSIS

Also

Brakes, Artillery Hubs, Heavy Steering Gears, Hangers, Counter-shafts, Reduction Gears and Sprockets for Electric Wagons. Parts for Power Wagons, Gasoline or Electric. Parts for Power Wagons, Light and Heavy. Equipment "L" makes the Best Light Electric Delivery yet produced.

HAYDEN EAMES, Sales Manager

AMERICAN TRUST BUILDING,

CLEVELAND, O.

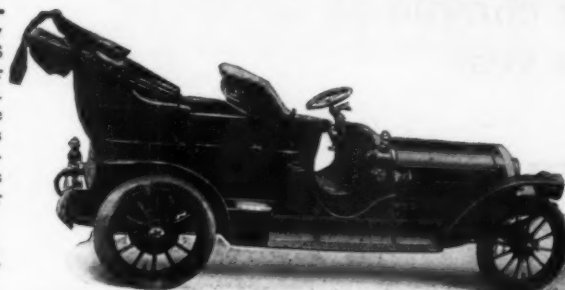


The PAYNE MODERN CAR

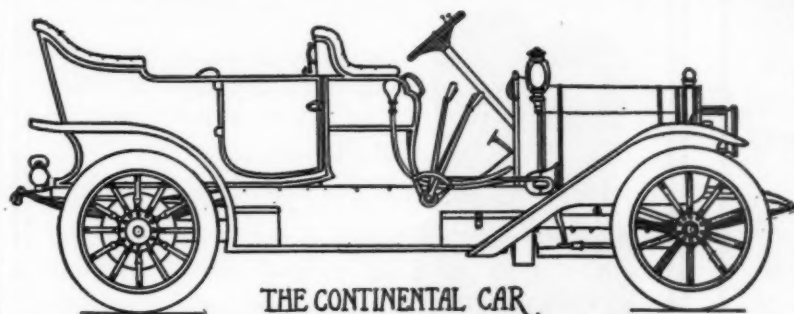
The Solution of the Problems

Years of testing have proved it so. An air-cooled motor that keeps cool with eighty pounds of compression, THAT MEANS POWER. A transmission gear with four speeds forward. Gears always in mesh. No stripping of teeth. On direct drive every gear as well as the lay shaft stands absolutely still and only one non-adjustable clutch used. Many other features just as valuable can be learned from our booklet. Write for it.

MODERN TOOL CO.
ERIE, PA.



THE CONTINENTAL CAR



THE CONTINENTAL CAR

True to its name and motto: "All that a Motor Car should be"

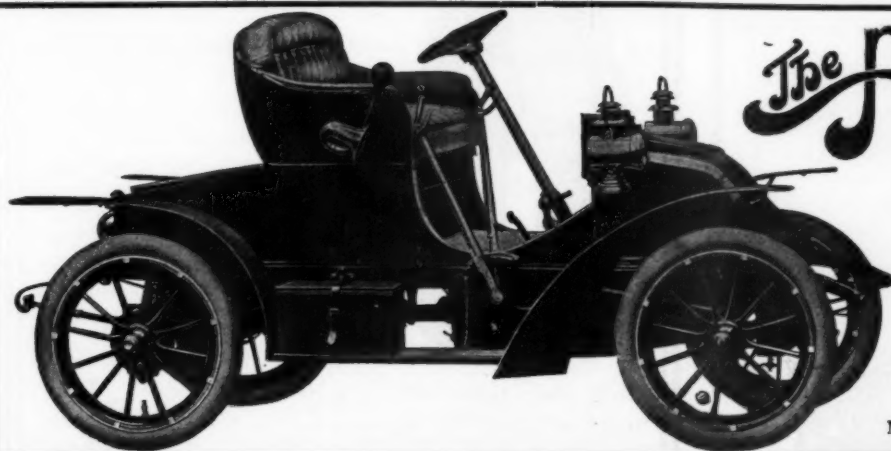
The first foreign designed car built in America at a moderate price
First to finish in Sealed Bonnet Contest, and has gone 1000 miles without an adjustment

DEALERS TAKE NOTICE

The Continental Automobile Mfg. Co.

New Haven, Conn.

1908 agencies now being contracted for.



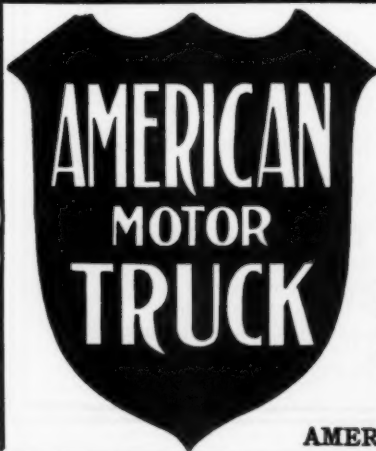
The Autocar

Type XV--12 H.P.
\$1200

The Autocar Company

8th Street, Ardmore, Pa.

Member: Association Licensed Automobile Manufacturers



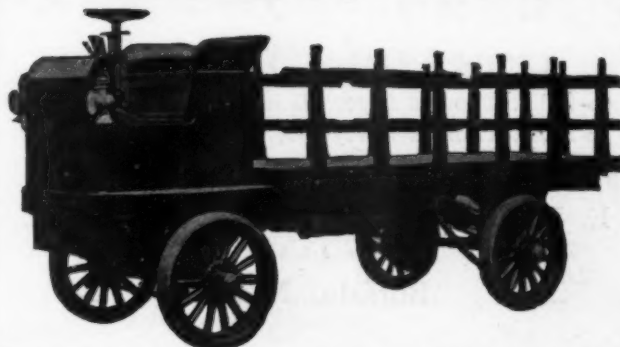
The Solution of the Delivery Problem

MAXIMUM STRENGTH—
MINIMUM EXPENSE
OF OPERATION

COMPACT POWERFUL
ECONOMICAL RELIABLE

Exactly sums up the essential features of "American" trucks. Far the best truck on the market to-day.

WRITE FOR FULL DESCRIPTION
AND PRICES



AMERICAN MOTOR TRUCK CO., Lockport, N. Y., and Monadnock Bldg., Chicago, Ill.

**Not one
tire complaint
this year**

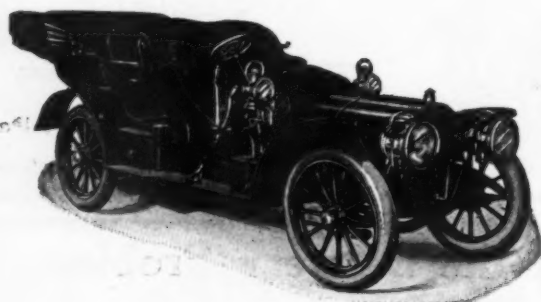
Thomas Flyer

Hundreds of cars in daily use for months. Some have traversed thousands of miles over roughest kind of roads. One made over 8,000 miles. Another 10,000 miles. **Not one complaint of tire trouble.**

Reason found in splendid policy of providing 1,500 pounds surplus tire capacity by equipping cars with larger tires and wheels at additional cost to us of over \$100. Front tires 36 x 4 inches. Rear tires 36 x 5 inches.

Proves again that we will not only eliminate all structural troubles but eliminate practically all operating troubles, such as tire troubles by use of big tough tires and ignition troubles by the use of a double ignition system.

All this is submitted for the cool and critical buyer—the conservative business man. Regardless of price no other large car can present such a grand record.



60-H. P. Thomas Flyer, \$4,000 f. o. b. factory.

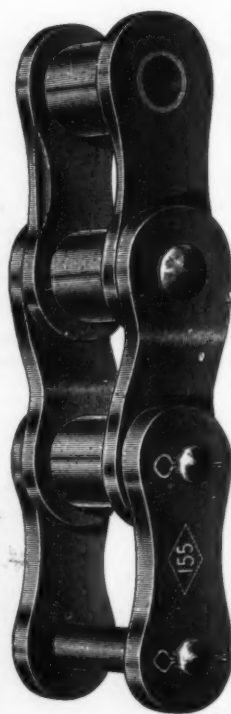
40-H. P. Thomas Forty, \$2,750 f. o. b. factory.

E. R. THOMAS MOTOR COMPANY

Member A. L. A. M.

Buffalo, N. Y.

DIAMOND Automobile CHAINS



operate smoothly even when hard driven under bad conditions. The hardened nickel steel rivets won't crack or break under the heaviest load, and their bearings are so uniformly tempered that no serious wear results when dirt and grit finds its way in. The elasticity of the special steel side bars prevents permanent stretch from sudden jerks, and when **Diamond Chains** are used as we advise, the pitch will not elongate enough to impair their action.

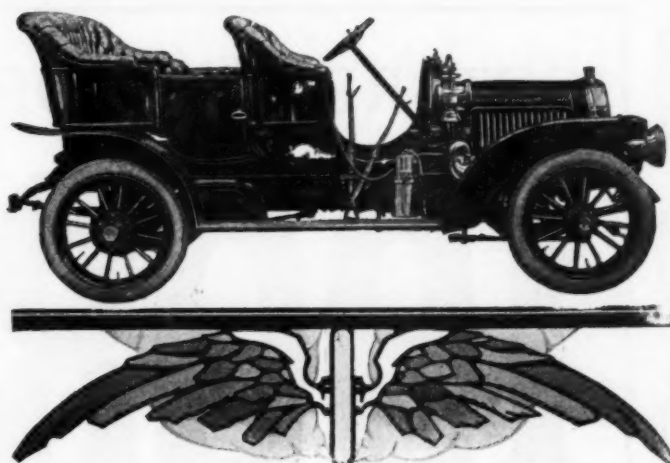
Diamond Chains were first put before the public seventeen years ago, when we originated the machined chain industry. They have since been proved, tested, improved and re-tested by actual service, until their superiority is generally conceded. They may be found on representative cars everywhere, and are made in every size. When your old chain is worn out replace it with a Diamond. Kept in stock by all jobbers.

Write for instructive book on Chain Power Transmission. Free if you mention this paper.

THE DIAMOND CHAIN & MFG. CO.

Capacity 8,000,000 ft. per year

230 W. Georgia Street, Indianapolis, Ind.



POPE-HARTFORD

Model L, Price \$2,750

SIGNIFICANT RECORDS

A long, unbroken record of satisfactory service; a reputation for hill-climbing ability second to no American car regardless of price, horsepower, or class; extreme flexibility of motor and successful daily operation meeting every possible test, have proved that in design, construction and workmanship the 1907 Model L is

THE PEER OF ANY CAR IN ITS CLASS

**Essentially the American
Car for American Roads**

Possessing speed, efficiency, perfection of control, and accessibility of working parts, combined with graceful appearance, the Pope-Hartford meets the demand for a mechanically perfect car, dependable at all times.

In the hill-climbing contest at Manchester, N. H., June 19th, 1907, a Pope-Hartford Model L won every event in which it was entered, defeating cars that sell for \$5,000 to \$8,500.

SUPERIOR TO ALL

**Pope Manufacturing Company
HARTFORD, CONN.**

M. A. L. A. M.



RENAULT

"The Expert's Car"



Silence Speed Simplicity

35-45 H.P. Special Racing Roadster,	-	\$8500
Touring Body,	- - -	9250
Limousine or Landaulette,	- - -	9750
20-30 H.P. Runabout,	- - -	6000
Touring Body,	- - -	6500
Limousine or Landaulette,	- - -	7000
14-20 H.P. Chassis,	- - -	4500
10-14 H.P. Chassis,	- - -	3200
8-10 H.P. 1908 Paris Taximeter Cab complete,	-	2950
Orders Now Booked		

RENAULT FRÈRES SELLING BRANCH

PAUL LACROIX, General Manager

57th Street and Broadway, New York

Telephone 3004 Columbus

AGENTS—We are now appointing agents for 1908. Application for territory should be made without delay.

KNOX

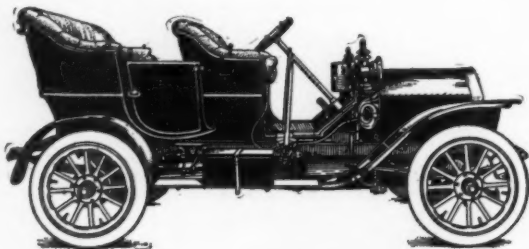
2 KNOX WATERLESS 2 PERFECT SCORES

In the four-day reliability test held June 12-15 by the Automobile Club of America, the best and fairest contest ever conducted in the automobile industry. The bonnets and all mechanism were sealed, no adjustments were permitted, and on the Knox cars, none were necessary. The minimum run was 150 miles in one day. Both of the participating Knox cars were stock models, one has been in daily use as a demonstrator for six months, the other for three months. Both were run to New York the day prior to the contest, and back to Springfield the day after.

IS ANY BETTER TEST OF KNOX RELIABILITY POSSIBLE OR NECESSARY?

Every Model "H" Knox will do as good work, and do it not only for six consecutive days, but for 365 consecutive days, and then some more. We do not build special cars, and every Model "H" is the same as every other Model "H," except in the color of the paint. Knox construction is right, and what is more important, stays right.

Illustrated catalogue is yours for the asking. Better get acquainted with the best car for the price of the year.



Knox Automobile Co.

Member Association Licensed Automobile Manufacturers

SPRINGFIELD, MASS.

GET READY FOR

1908

The sale for Cadillac cars has always been so great that our factory has never been able to fully meet the demand and we have, therefore, not been in a position to take on many new dealers.

We have, however, recently enlarged our manufacturing facilities and shall be in a position to make arrangements with a limited number of new dealers in unoccupied territory.

It is not necessary here to go into details about Cadillac cars. They are the most popular and easiest cars in the world to sell. Their unequalled dependability and economy of operation and maintenance is so universally known that the Cadillac usually receives the first consideration of a prospective purchaser, the question being whether he could get one.

If you are an automobile dealer or expect to take up the business, your success depends upon handling cars that give satisfaction and that you can sell in increased quantities year after year.

Cadillac dealers as a rule are the most successful dealers because they can sell more of them than any other and because it takes less effort and less expense to sell a Cadillac.

The line is in part as follows:

10 H. P. Runabout.	\$ 800.00
10 H. P. Four-Passenger Car.	950.00
10 H. P. Enclosed Coupé.	1,350.00
20 H. P. Four-Cylinder Runabout or Touring Car.	2,000.00
30 H. P. Four-Cylinder Touring Car.	2,500.00

Now is the time to get ready for 1908 by selling some Cadillacs this fall and getting trade started which no other car can take away from you.



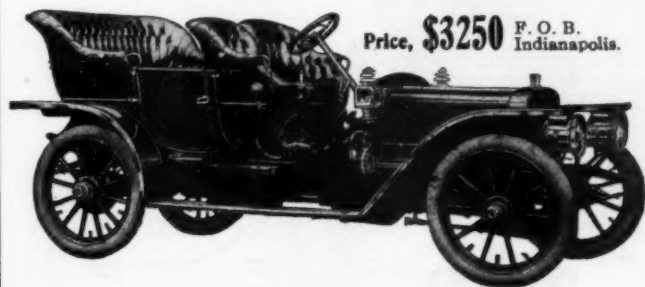
Cadillac Motor Car Company

Detroit, Mich.

Members of Ass'n Licensed Auto. Mfrs.

The American Tourist

"NO NOISE BUT THE WIND"



Price, \$3250 F. O. B.
Indianapolis.

Satisfies the Idealist

Define your own ideal of touring car perfection and note how ably the American Tourist meets it.

For a car of its size, elegance and comfortable capacity it is comparatively light (2,600 pounds). Large wheels, drop frame and special spring arrangement insure ease of motion and a welcome relief from tire troubles.

Its powerful engine (four cylinder, 5x5, rated very conservatively at 40) insures reserve energy for all occasions.

A Car of Thorough Design

Special features provide for perfect control at all speeds, and freedom from engine or other mechanical troubles. And yet its construction is extremely simple.

Combine all this with its excellence of materials, careful hand workmanship, and beauty of appearance, and you will find the American Tourist much to your liking.

WRITE FOR CATALOG

American Motor Car Company

903 State Life Bldg., Indianapolis, Ind.

Selling Agencies: New York City, Detroit Motor Car & Supply Co., 2230 Broadway. Boston, Mass., W. A. Fredericks, 16 Columbus Ave. Chicago, Ill., Pardee & Canary, Inc., 1218 & 1220 Michigan Ave. St. Louis, Mo., Peper Automobile Co., 3922 Olive St. Denver, Col., Smith Automobile Co., 1420 & 1422 Court Place. Los Angeles, Cal., S. California Motor Car Co. Tonapah, Nev., Renfros Garage. Cedar Rapids, Ia., A. E. Durin. Oklahoma City, Okla., Oklahoma Motor Car Co. Elmira, N. Y., Willys Crew Motor Co.

**Have You Seen the American Roadster?
The Sportiest Thing on the Road!**

Matheson

TWO Matheson cars add perfect scores in the 4-day Sealed Bonnet Contest to the long list of Matheson performances.

Mr. R. G. Kelsey, an Amateur, drove his 1906 Matheson throughout this contest with no more need for an adjustment than on the famous trips to Chicago and Boston which he made with this same car and on which he made the best time of the year under the frightful road conditions. This in spite of the fact that the rules obliged Mr. Kelsey to make 25 miles a day more than any other car except one of a famous European make.

This performance means but little in itself, but coming as it does—so close on the other Matheson victories—the new record for gasoline cars made in the hill-climb up "Giant's Despair" and the perfect scores in other endurance runs on Decoration Day—it tells a story eloquent of Matheson reliability in any event—under all conditions.

No car in the world—not the greatest of the foreign cars—can equal the Matheson in service over American roads. The Matheson will carry seven people seventy miles an hour. You cannot purchase a more beautiful and luxurious car.

Licensed Under Selden Patent

Reasonable Deliveries

Touring Cars—Runabouts

35 H.P., \$4,500

50 H.P., \$5,500

The Matheson Company of New York

1619-21-23 BROADWAY

Tel. 4876 Col.

Smith Tourists' Companion

The "Tourists' Companion" (type No. 9), one of the finest products of the great English instrument and watch makers, S. Smith & Son, Ltd., combines in one handsome fixture:

1. **The Smith Perfect Speed Indicator:** The only speedometer on the market which is exactly accurate for every speed. The unique three-spring construction and the individual hand-marked dial make it possible.

2. **Barometer:** It will foretell rain before the sky does.

3. **Trip Odometer:** 100-mile limit. Turning a button returns it to 00 whenever desired.

4. **Season Odometer:** For registering totals up to 10,000 miles.

5. **Compass:** Balanced on universal joint. Makes the road maps intelligible and saves errors.

6. **Eight-Day Clock:** Our well-known workmanship. Accurate and absolutely vibration-proof. Extra at small additional expense: A "maximum hand" on the Speedometer. It saves arrest and prevents unauthorized use of car.

In ordering, always specify in full "S. Smith & Son Tourists' Companion."

Full instructions for applying sent with every instrument.

Ask your accessories dealer for particulars, or write directly to us for large catalogue of speedometers, odometers, combination attachments, clocks, compasses, head and side lights, horns, and other interesting and convenient automobile fixtures. Mailed free to any automobilist.

S. SMITH & SON, Ltd., 116 Broad Street, New York

To Dealers: Write for our terms to the trade. We want good representatives at once in every city and town in the United States. Our line is of the very best grade and can be handled with perfect confidence. Send for particulars.



John Boyle & Co.'s TRUNKS

Need small comment as far as reputation for QUALITY, SERVICE, DURABILITY and STYLE goes.—Select any one of the shapes for the various makes of cars and you are assured of the highest quality. Like everything else that's good, however, there are imitations. Be careful in your choice. Buying a trunk without a reputation is like spinning a coin, a "hit or miss" proposition.

No Trunks will give such satisfaction as those made by JOHN BOYLE & CO.

A letter asking for particulars and prices will bring proof aplenty.

WRITE TO US

JOHN BOYLE & Co.

112-114 Duane St. 70-72 Reade St.
NEW YORK

Type XVIII
7 Passenger Tour-
ing Car, 40 H. P.
\$4500

Type XVI
5 Passenger Tour-
ing Car, 40 H. P.
\$4000

ACME

Type XVI
Runabout Road-
ster, 40 H. P.
\$3500

Type XVI
Roadster, 30 H. P.
\$3000

A LOGICAL STORY

"Fur," said the Deacon, "'t's mighty plain
That the weaker place mus' stan' the strain;
'N' the way t' fix it, us I maintain,
Is only jest
To make that place uz strong uz the rest."
—The Wonderful One Hoss Shay

The Deacon's sentiments are ACME sentiments. The ACME car is built *entirely* by the ACME MOTOR CAR COMPANY and is constructed so that each part is proportionately as strong as the rest. The result is an all-round, *strong*, well assembled car. Externally, it has the finish of a Pullman Palace car. Internally, it is constructed with the accuracy characteristic of a Jurgensen watch. The "One Hoss Shay" was built to run One Hundred Years to a day. The "Forty Hoss Acme" is built along the same lines.

"The Car That Continues to Make Good"

The ACME MOTOR CAR COMPANY
READING, PA.



Of 62
Contest-
ants
in the
Glidden
Tour,
38 Used
The
Auto-
Meter—
Nearly
2/3

How Far Can You READ this?

Hold it Away From You and See

It's the scale of The Warner Auto-Meter, actual size. It says your Automobile is traveling 4 miles an hour. It is just as steady on your car as it is in your hand—for the scale of

The Warner Auto-Meter

is not influenced by the jar of the car—speed alone moves it. It doesn't bob around, the way other indicators do, until you are not certain whether it says 5 miles or 15.

Let us tell you more about this wonderful instrument—how it's made with sapphire jewels like a watch, yet is so strongly built that it takes an axe or a bad collision to break it or render it inaccurate, and how we use *magnetism* (in the only practical way), which makes The Auto-Meter as reliable as a mariner's compass forever.

Let us *prove* to you the good reasons why our *Guarantee* of The Auto-Meter is more liberal than any other manufacturer of speed and distance indicators *dares* to make.

Write us The Model or Power of your car and we will send you full information about The Auto-Meter with price ready to install on the dashboard.

THE WARNER INSTRUMENT CO., 677 Roosevelt St., Beloit, Wis.
The Auto-Meter is sold by all Dealers and at the best Garages.

Stevens-Duryea Limousines

WE are preparing a limited number of Light 6 Limousine Bodies for delivery, commencing the latter part of this month. If you desire a Limousine for your Light 6 for use in the Fall, we would advise sending in your specifications through your dealer as soon as possible.

Comfort as well as style was kept in mind in the designing of these bodies. The curved windows in front afford the occupants within an unobstructed view. The bodies are of aluminum, with round backs, seating four inside comfortably or five with a little crowding, and two in the front seat.

A limited number of Model R Limousines are ready now. These bodies can be fitted to any Model R sold in 1905, 1906 or 1907. The inside seating capacity is three comfortably. On account of the limited supply it is policy to place your order at once.

STEVENS-DURYEA COMPANY

900 Main Street

CHICOPEE FALLS,

Members A. L. A. M.

MASS., U. S. A.

IT STAYS NEW

That phrase is borrowed from the remarks of a man who has driven 28,000 miles in the



The distinctive **Berliet** lightness and strength, unfailing compression and remarkable longevity, are largely due to Vanadium, "the anti-fatigue metal," which for years has been used in all its steel and iron.

It is economy to buy what lasts longest. It is good business to sell what is serviceable.

The **Berliet** combines the best of imported material and the best of American workmanship.

The energies and guarantee of a \$50,000,000 company are behind it.

All cars overhauled free at end of first year and customers kept content.

24 H. P., \$5,500

40 H. P., \$7,500

60 H. P., \$9,000

AMERICAN LOCOMOTIVE AUTOMOBILE COMPANY

PARK SQ. AUTO STATION
Boston

Factory, Providence, R. I.

1886 Broadway, New York

H. OSCAR BROWN, Philadelphia

W. W. SHAW CO.
Chicago

**REO****\$1,250**

5 passengers; 16-20 horsepower,
\$1,250 f.o.b. Lansing, Mich. Top extra.

WHAT'S BENEATH IT?

When a \$1250 car goes out, as the REO did, on Pasadena Hill, and beats two \$4000 cars, two at \$3000 each, five at \$2500 and five at \$2000—when it climbs a 10 to 20 per cent. grade at 40 miles an hour, and wins the silver cup from 5 competitors, as the REO did on Sport Hill, Bridgeport, Conn.—and when, as in the terrific New York to Albany try-out, among 27 starters and only 16 survivors, it is one of the first five to finish (all bigger and costlier cars) then its claims must surely be founded on

BED-ROCK MERIT

Write for the interesting 24-page "Story of the REO"

R. M. OWEN & CO.,

Lansing, Mich.

General Sales Agents

The VICTORIOUS

Darracq

"The Fastest Car in the World"

DARRACQS DE LUXE

¶ Any maker can add two cylinders to his engine and announce that he has produced a six-cylinder car, but a true six-cylinder car means more than that. A six-cylinder engine has problems that are all its own, not to be solved by a simple extension of four-cylinder principles.

¶ But the Darracq for 1907 is a real six-cylinder car—one of the very few on the market. Unique devices have been developed to answer properly the unique needs of this form of engine. Novelties in design have fulfilled the necessities of novel principles.

¶ Almost alone of Automobile builders, Darracq et Cie are ready to declare that their six-cylinder model is as perfect and complete to the uttermost detail as their standard four-cylinder cars.

¶ Equipped with the finest bodies of every style, the 1907 six-cylinder Darracqs de Luxe are recognized by every expert who sees them in our salesrooms as the summit of achievement in the automobile industry.

¶ We have several of these cars for immediate delivery; also the well-known standard four-cylinder cars with open or closed bodies.

DARRACQ MOTOR CAR CO., 1989 Broadway, New York

Licensed Importers under Selden Patents

Boston—171 Huntington Ave.
Philadelphia—514 North Broad St.

Chicago—1502 Michigan Ave.
Pittsburg—307 Wood St.
Los Angeles—1030 South Main St.

Providence—7 Dorrance St.
San Francisco—387 Golden Gate Ave.

ORBIN

Not One, but Three

The three "full-jeweled" Corbins entered in the Sealed Mechanism Contest (600 miles) of the A. C. A. **all finished with perfect scores.**

You will find it just the car you want

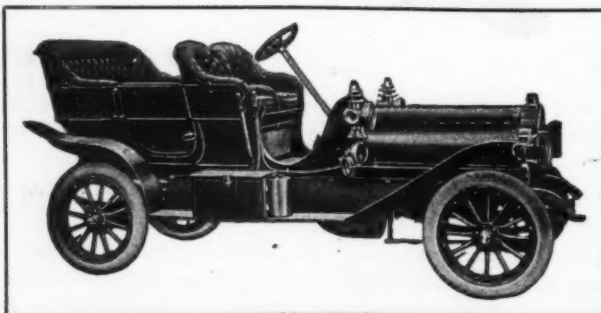
THE CORBIN MOTOR VEHICLE CORPORATION, New Britain, Connecticut

Member Association Licensed Automobile Manufacturers

CORBIN MOTOR VEHICLE CORPORATION of New York, 1888 Broadway
CORBIN CAR COMPANY of Boston, Motor Mart

THE LAMBERT**FRICTION
FLYER**

Combines More Good
Points Than Any Car
on the Market



It is up to the minute in construction, from the motor to the smallest bolt in the car. Starts easy—rides easier—costs less. Ask for a demonstration from our nearest agent, or write direct to the Buckeye Manufacturing Company, Anderson, Indiana, for handsome art catalogue, describing our models.

Delivery guaranteed within three days of receipt of order.

Elmore

Valveless 2-Cycle

Where's the Power Gone That I Bought With This Expensive Car?

Three-Cylinder, \$1,750. Four-Cylinder, \$2,500.

That's the question the owner of a costly four-cycle car asks himself after the first year of his purchase.

Perhaps the car was as well built as it could be—but the principle was wrong.

There's a difference between the intermittent, spasmodic power of the four-cycle car and the rhythmic, steady, continuous power of the two-cycle Elmore.

Yes—and there's a difference between the cost of upkeep of the four-cycle car with valves and the two-cycle Elmore which has no valves.

Yes—and there are a dozen other differences—all of which you should learn about before you buy any car.

Our booklet, "Our Daily Mail," tells most of them—get it.



The Elmore Mfg. Co.
1304 Amanda St., Clyde, O.
Members A. L. A. M

HERE'S HOW WE BUILD

DIAMOND TIRES

Wrapped Tread. 32 x 3 1/2 front and rear

MARSH DETACHABLE RIMS

Quickest Safest Best

A-1 Second Growth HICKORY WHEELS

Same as used on cars costing highest prices

CONTROL, One Lever

Ideal in its simplicity

BRAKES, Two on Hubs

FRAME

Pressed Steel. 108-inch Wheel Base

SPRINGS

Garden City Spring Co.'s Triple Action with Supplementary Spiral Shock Absorbing Service in rear

BODY

Straight line seating five. Plenty of leg room

CURLED HAIR UPHOLSTERY

No Moss All Hair

VENTILATED AIR SPRING CUSHIONS

FLANGE-EDGED FENDERS All Round

With Mud-guard Aprons preventing mud from splashing on body of car

ENGINE BEARINGS

Highest grade Phosphor Bronze and Parsons White Brass

E. & J. LAMPS

Meaning quality. Five of them. Two Gas Headlights and Generator

THE C.-F. CAR

Read the Specifications

TWO MODELS

ONE PRICE

4-Cylinder,
30 H. P.

4-Cylinder,
30 H. P.

\$1750



\$1750

BOTH MODELS

SAME PRICE

READ THE DETAILS OF THEIR CONSTRUCTION

THERE IS NO OTHER CAR ANYTHING LIKE IT

We can close with a few more dealers for 1907
Correspondence solicited far and near for 1908

Cornish-Friedberg Motor Car Co.
1233 Michigan Avenue, Chicago

COLORS AND EQUIPMENT

Brewster Green Finish or Red with Black Trimmings. Special Colors when preferred at no extra cost. Equipment includes E. & J. Lamps, full set of 5-inch Generators and complete set of Tools

ENGINE

4-Cylinder 4 1/2 x 4 1/2, 30 Horsepower, Dust Pan

OILING

Mechanical Force Feed. 9 Leads. Feeds through Glycerine Sight Feeds on Dash

IGNITION

Jump Spark with Storage Battery and one set Dry Cells

SPLITDORF COIL—On dash

WITHERBEE BATTERIES

LONG RADIATOR
Famous as the Spiral Tube Kind Made on honor

COMMUTATOR

Four point roller contact, enclosed from dirt and filled with lubricant

SCHEBLER CARBURETOR

Standard of the Carburetor World

MUFFLER "YANKEE"

Absolutely silent. No back pressure

TRANSMISSION

Fool proof. Gears Nickel Steel

DRIVING SHAFT And Universal Joints

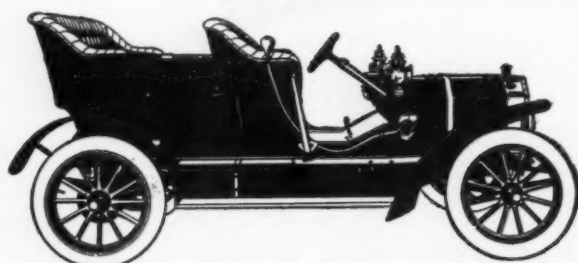
BLOOD BROS.

AXLES, Bevel Gear

Standard Roller Bearings

**WHERE ELSE CAN YOU GET SUCH
VALUES AS THESE?**

1907 GREAT SMITH CAR



Price, \$2500 F. O. B. Topeka

Q Four cylinders, $4\frac{1}{2} \times 5$ inches, water cooled engine, sliding gear transmission, three speeds forward and one reverse, 107 inch wheel base, 34×4 inch tires. Multiple disc clutch, ample tonneau, magnificent upholstery. Full elliptic unbreakable springs. Refrigerator in box at side. Ample room for extra tire, three powerful, durable brakes

In all respects a perfect machine—Built as well as any car in the world

SMITH AUTO CO., Topeka, Kansas, U. S. A.

Makers of the World's Greatest \$2500 Car

AMERICAN MORS

A CAR BUILT FOR PERMANENCE

Built to do everything that a perfect automobile should do, and it does it.

The American Mors is the triumph of the best French and American Engineers.

Licensed by the Société Anonyme d'Electricité et d'Automobiles "MORS," Paris, France

GUARANTEED FOR ONE YEAR

AMERICAN MORS TOURING CARS—THREE TYPES:

14-18 H. P., \$3 000

24-32 H. P., \$5,000

40-52 H. P., \$6,000

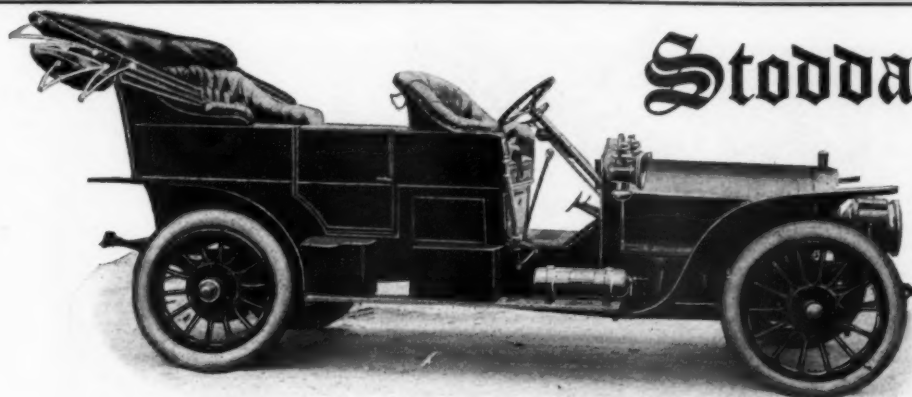
All Bodies of the Most Perfect Designs—Complete Equipment

Send for our Catalog. Address Dept. G³

THE ST. LOUIS CAR COMPANY, Automobile Department, St. Louis, Mo.

NEW YORK: 1706-1718 Broadway, cor. 54th Street

**BUILT BY THE
LARGEST BUILDERS OF STREET CARS IN THE WORLD.**



Stoddard-Dayton

SIX CYLINDERS ALL IN ACTION

Model 8G, the Six-Cylinder Stoddard-Dayton, has proved the most delightful surprise of the year. If YOU want a powerful touring machine not as heavy as a freight car and built on modern lines with just enough hood to give it graceful proportions, Model 8G will fill the bill of particulars.

It embodies all the points of

excellence which have proved factors in the success of every Stoddard-Dayton—the cars that have ALL made good. Perfection in construction has been attained in Model G, for

Every One of the Six Cylinders Work Regularly

instead of several getting in an occasional spasmodic explosion. Bosch High-Tension Magneto and jump spark with sextuple coil and storage battery give two complete systems of ignition.

Stoddard-Dayton Six Cylinder is a roomy car, big enough to comfortably seat seven large people. The extra seats are of the disappearing type—out of the way when not in use.

A powerful car, riding like a baby carriage, as easily controlled as a runabout and combining strength, silence, simplicity, beauty, elegance, comfort and luxury.

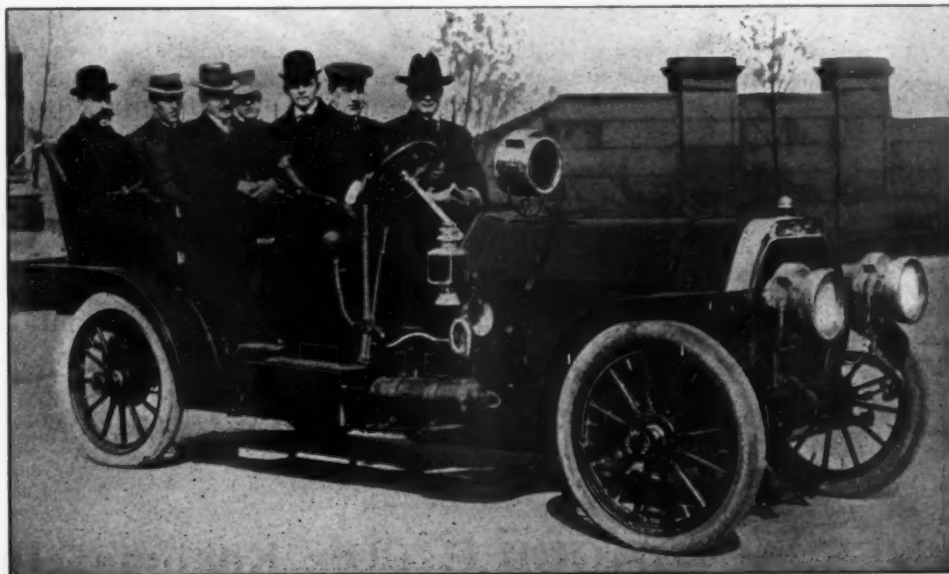
Model 8G—a seven-passenger, Six-Cylinder Touring Car. Cylinders cast in pairs, 4 5-8 x 5 inches. 50-60 H. P. Transmission—selective, sliding gear type—three speeds forward and reverse. Price, fully equipped, \$4,500.00.

Let us send you full description of this Modern Car—the BEST in its class.

THE DAYTON MOTOR CAR COMPANY, - - - DAYTON, OHIO

GEARLESS CARS REPRESENT REAL VALUE

The "Great Six" shown herewith with its 75 H.P. Motor, comfortably seating seven passengers, lists at \$4,000



Model 60—60 H.P., with Magneto, seats five, room for more, \$3500.

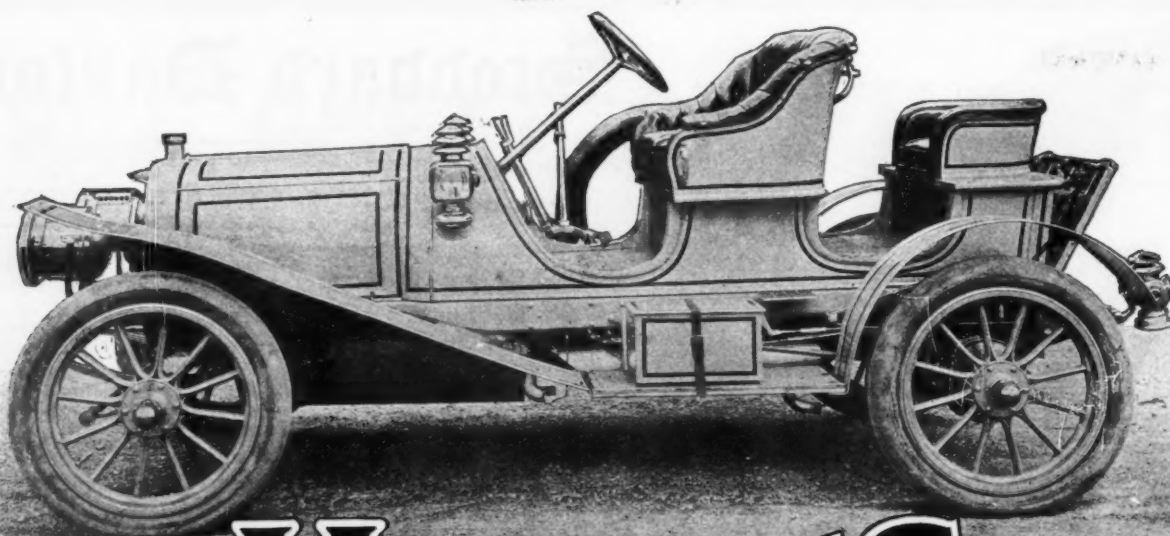
Model 50—50 H.P., "The Gearless Valveless 2-Cycle Car," \$3250

All Models Equipped with "THE GEARLESS TRANSMISSION. THE DIRECT DRIVE TRANSMISSION."

WRITE FOR CATALOGUE.

DEMONSTRATING CARS READY.

GEARLESS TRANSMISSION CO., ROCHESTER, N. Y. Motor Car Dept.



HAYNES

The New Semi-Racer Proves Itself

After it had been on the market less than a month the new Haynes Semi-Racer won its first competitive test in the 200 Mile Endurance Run of the New York Motor Club, June 6th. Over roads which recent rains had put in horrible condition, under conditions that required an average of 20 miles an hour, a very high average for touring, this Haynes Runabout won in its class. It reached its destination at Albany ahead of time, and in fact through a mistake of the timing was permitted to cross the line too early and was penalized. Experienced drivers said that the run was the hardest endurance test which had ever been held in this country for stock cars.

The Haynes led all the cars during most of the race, beating the high powered touring cars at most of the controls.

The chassis of this car is the same as our Model "S" touring car with all the improved and advanced features which have made our 1907 models famous. It has the patented roller pinion and sprocket direct drive, solving satisfactorily the old problems of rear-axle strains.

It is impossible for the driver to injure the car by careless or rough handling, because the master clutch cannot be made to take hold otherwise than softly, and the exclusive transmission control allows change of gear without releasing the clutch by a single movement of the hand with no possibility of burring or stripping the cogs. The Haynes positive cooling system makes overheating unknown.

Unlimited speed, perfect comfort, a silent engine and transmission, a snappy style, and a name that is thirteen years old—these are what can be had in this new semi-racer.

No one can doubt the supremacy in its class of "the latest model from the oldest maker." Price \$2,500.

OTHER MODELS:

Model "T," the Vanderbilt Cup Racer Chassis, 50 H.P. Touring Car, seating 7, \$3,500.

Model "S," 30 H.P. Touring Car, seating 5, \$2,500.

For catalogue address desk C 54.

HAYNES AUTOMOBILE CO., Kokomo, Ind.

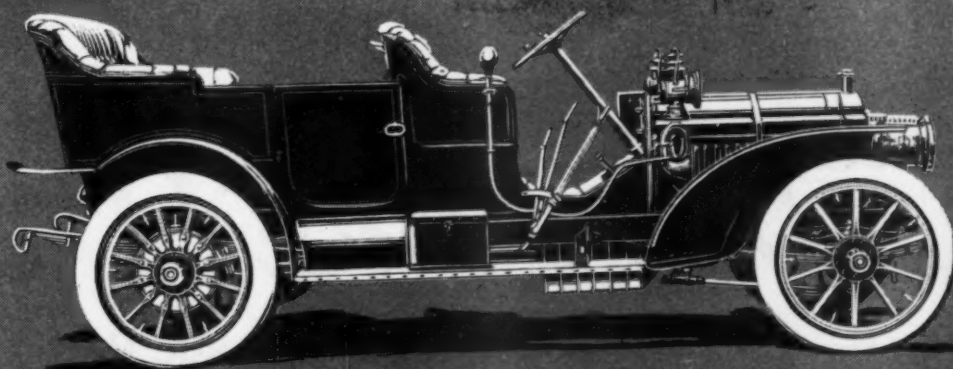
Oldest Automobile Makers in America

Members A. L. A. M.

NEW YORK, 1715 Broadway

1420 Michigan Ave., CHICAGO

Packard
"THIRTY"
1908



PACKARD MOTOR CAR COMPANY
DETROIT, MICHIGAN



Both of *The* **"Maxwell"** Cars

entered in the "Sealed Bonnet" Contest made Perfect scores

One was the 12-14 H. P. Tourabout shown above, and the other a 5-Passenger 16-20 H. P. Touring Car—both of them ordinary stock cars.

Although the "Maxwell" was by no means the only car to finish this peculiarly exacting test with a perfect score, I want to call your especial attention to the fact that this "Maxwell" Tourabout, costing only \$825.00, and the touring car, costing only \$1,450.00, performed every bit as well as the successful cars which cost three and four times as much.

The "Maxwell" also swept the entire field of light cars at the great Wilkes-Barre and Bridgeport hill climbs.

The "Maxwell" holds the 3,000 mile non-stop record of the world, won the Deming Trophy in the Glidden Tour of 1906, and has won endurance contest after contest.

Be sure to address Dept. 3 for complete "Maxwell" literature, and write me for a demonstration of the "Maxwell."

30 Palisade Ave., Tarrytown, N. Y.

Main Plant: Tarrytown, N. Y.

Factories: Chicago, Ill., Pawtucket, R. I.

DEALERS IN ALL LARGE CITIES

Benj. Briscoe

President, Maxwell-Briscoe Motor Co

Members A. M. C. M. A.



12-14 H.P., \$825



16-20 H.P., \$1,450

The Incomparable **WHITE** THE CAR FOR SERVICE



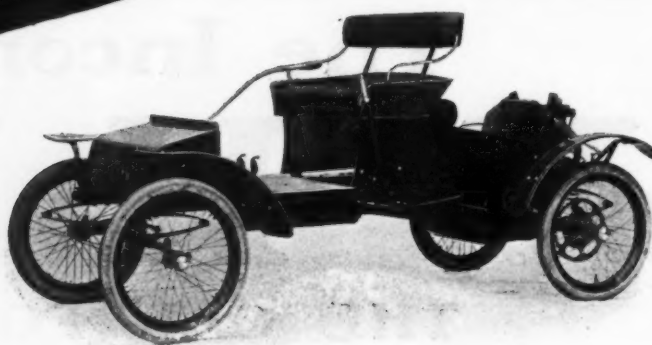
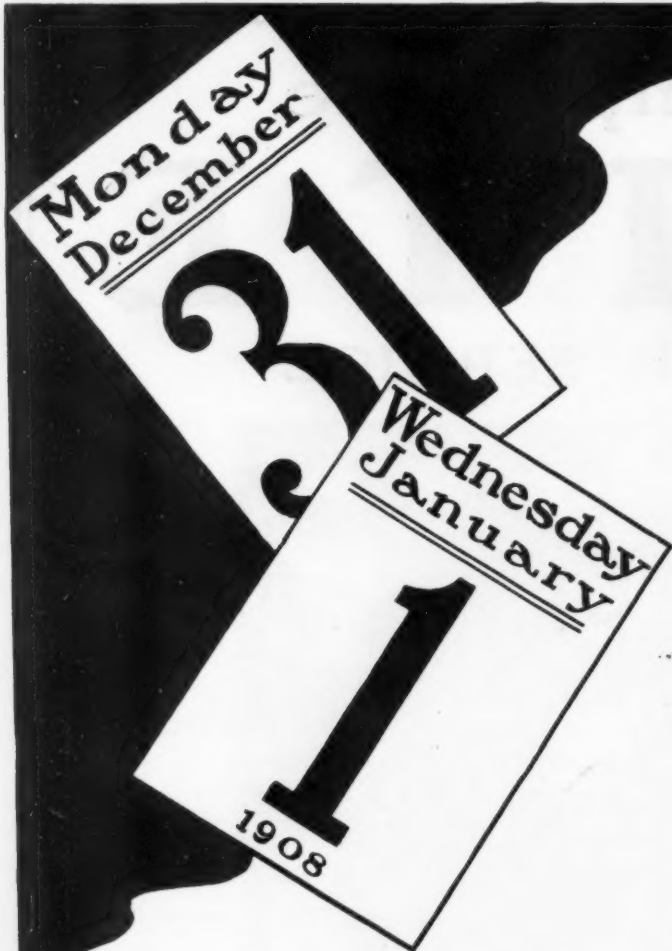
WHITE RELIABILITY DEMONSTRATED ON THREE CONTINENTS

In **AMERICA**, perfect scores were made by the two 30 H. P. White Steamers entered in the 600-mile Sealed Bonnet Contest of the Automobile Club of America. Both cars finished in perfect condition and were ready for several more contests of the kind.

In **EUROPE**, a 30 H. P. White Steamer recently completed an 1871-mile non-stop run from London to Glasgow, then over the route of the Scottish Reliability Contest, and back to London. This trip was made under the surveillance of an official observer appointed by the Royal Automobile Club.

In **ASIA**, White Steamers were selected by the Punjab Motor Transport Company, after severe competitive tests in which the leading makes of the world took part. Low cost of up-keep, supreme reliability, and suitability for continuous 'bus service in a mountainous country, where there are practically no repair facilities, were the factors which determined the choice. Ten White cars have just been placed in service by this company.

THE WHITE COMPANY CLEVELAND, OHIO



From One Year's End
to the Other

WALTHAM CARS

May Be Depended Upon For
Reliable Service

**They Minimize Investment Cost. They Eliminate Trouble and Save Money in
Maintenance Cost over all Other Cars in either BUSINESS or
PLEASURE CAR SERVICE.**

READ THIS LETTER — IT'S INTERESTING

Mr. E. P. CHALFANT, Sales Manager,

Waltham Mfg. Co., Waltham, Mass.

Dear Sir:—Since receiving the two-cylinder Model BR I have not had an opportunity to take it over the country roads until last Sunday. This was due to the fearful weather, which has been continuous with us for quite a long time; however, last Sunday showed up pretty nice and I drove the car to Sandwich, Illinois, visiting several towns between here and there, and gave a good many exhibitions as to hill climbing, etc. From the time that I left Chicago until I returned, the tool box was never opened, not a single adjustment of any description was made on the engine, and for the first time in the history of my automobile experience my hands were perfectly clean, and I stepped out of the car in Sandwich, Illinois, just as clean as I stepped into it in Chicago. For speed, great power on the hills and quiet running, I believe that Model BR excels all other cars, regardless of price.

Between this city and Aurora we met many cars. We met no car that passed us nor was there any car close to us when we reached Aurora. At no time during the trip did I use the full power of the engine, nor anywhere near its full power, and it is certainly a very satisfying feeling to know that you have so much power in reserve. The absolute quietness of the engine is not only a revelation to everyone who rides in the car, but it was a revelation to myself. Between Bristol and Sandwich is quite a country for game, and there were a great many rabbits on the road. The quietness of the car can be imagined when on two or three occasions we got mixed up with the rabbits. They simply did not hear us coming.

On the road to Aurora between Downers Grove and Naperville is the old Snake Hill, the terror of bicycle riders in past days. This hill staggers a great number of good cars. This was where I wanted to fully test the power of Model BR. I went up that hill three times faster than I ever before went in a car. I only pulled back one notch on the transmission, and the car simply rushed ahead. Our odometer showed 173 miles, and when I stepped out of the car I felt as if I had not ridden 20 miles. There is absolutely no engine vibration of any description and the springs are very flexible, giving that easy motion over the country roads which is never tiresome. You will hear from me again on this subject after the Reliability Contest, which takes place here the latter part of this month. This car cannot help being widely known before the season is half over, as it can more than hold its own against any car on any road.

Very truly yours,

(Signed) J. H. TOOLE.

CHICAGO, ILL., June 8, 1907.

What it Does for Mr. Toole, it Will Do for You

Types of Cars to Meet Every Business
and Pleasure Car Requirement.

Write for Illustrated Catalog giving
Full Particulars (FREE).

NEW YORK
1615 Broadway

WALTHAM MANUFACTURING CO.
WALTHAM, MASS.

CHICAGO
433 Wabash Ave.

A Wonderful NEW Record for Motor Cars and A Most Decisive Victory for the **PREMIER 24**

¶ A Premier 24, regular stock touring car has just completed the most remarkable **non-stop** run in history, having covered over **4,906** miles **over the roads** between New York and Bridgeport, Conn.

¶ This sturdy car carried from two to ten passengers each trip, over a distance equal to that from

NEW YORK TO SAN FRANCISCO AND BACK TO OMAHA—WITHOUT A STOP

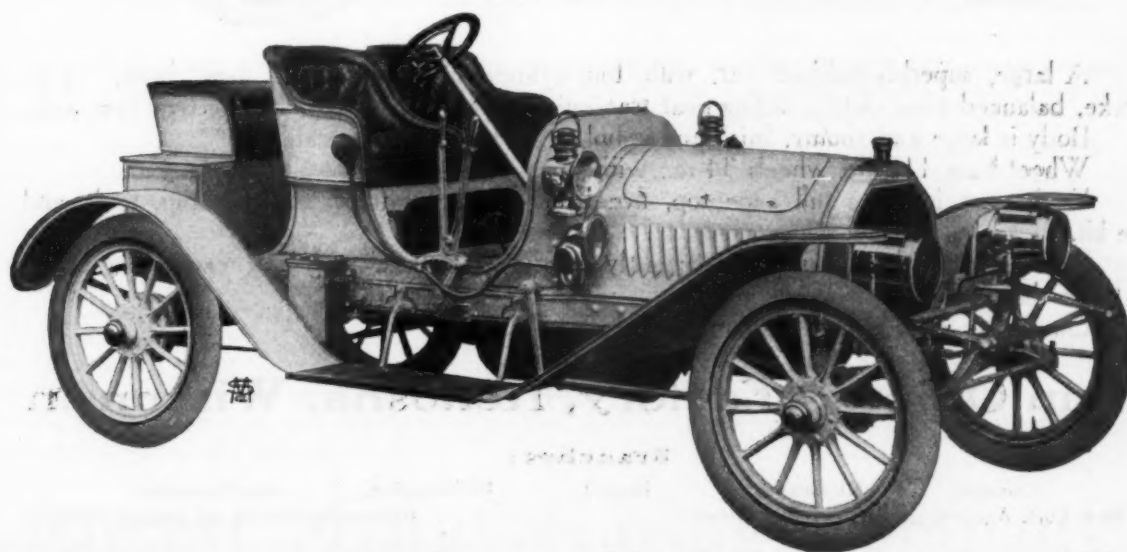
¶ Such a feat was never before accomplished.

¶ This constitutes such a **mountain** of evidence of PREMIER reliability, durability and superiority as should convince everyone that the PREMIER fulfills our claims that it is the **best road car made**.

¶ This run was terminated by the breaking of a battery wire, the car in all respects being in as good condition at the end of the run as in the beginning.

¶ Two stock Premier cars finished the Chicago Reliability Run with perfect scores.

¶ Learn more about the Premier car from our catalog T.

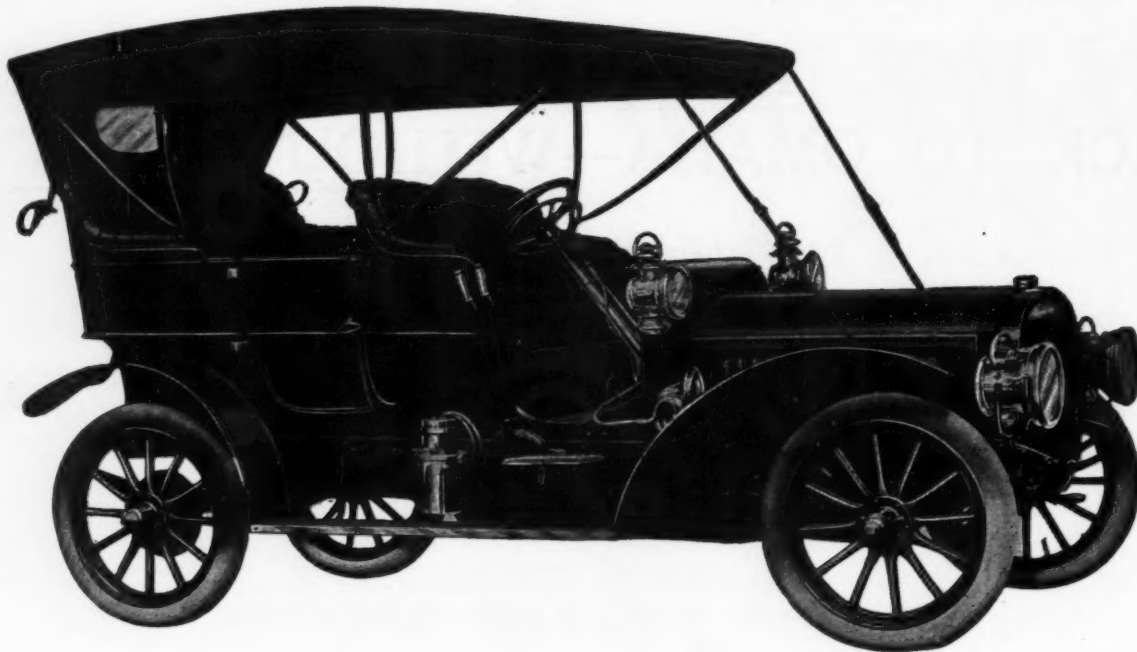


PREMIER MOTOR MFG. CO., INDIANAPOLIS, IND.
U. S. A.
Members A. M. C. M. A.

The New Rambler

MODEL 245.

The Greatest Value Ever Offered



A large, superbly-finished car, with four-cylinder vertical motor, 5-in. bore, 5½-in. stroke, balanced cone clutch, sliding gear transmission, shaft drive and floating type rear axle.

Body is large and roomy, finish and upholstery the finest attainable.

Wheel base 112 in., wheels 34-in., with 4-in tires.

Equipment includes full cape top, five lamps, storage battery, horn, pump, tools and tire kit.

The price is \$2,500, and we earnestly invite comparison with any car selling at up to twice the price.

One of six models in price from \$950 to \$2,500.

Main Office & Factory, Kenosha, Wisconsin

Branches:

Chicago,
New York Agency, 38-40 West 62d Street

Milwaukee,

Boston,

Philadelphia,

San Francisco.

Representatives in all leading cities

Thomas B. Jeffery & Company



PARK DRIVE, WILMINGTON, DEL., MADE DUSTLESS WITH TARVIA

THE DUST PROBLEM SOLVED

The problem of suppressing road dust is now receiving the attention of the best engineers and road makers in all civilized countries. The suppression of this nuisance has become a necessity, for not only does it damage crops and decrease real estate values, but it is a menace to health itself.

Various methods have been tried for suppressing dust, including sprinkling roads with fresh water, treating them with calcium chloride, impregnating the road surfaces with crude oils of various kinds, etc., but all of these methods have fallen short of their purpose.

Within the past two years, following some experiments by French engineers, this company introduced Tarvia, a special tar preparation. The results from this treatment have been unusually successful. Some 800,000 yards of macadam roads were treated in about thirty different cities. This included work at Jackson, Tenn., under the supervision of the United States Department of Agriculture and work on New York roads under the supervision of the State Boards. It was absolutely demonstrated that Tarvia not only suppresses dust but adds materially to the durability of the road. It has been estimated that its use reduces the wear on the road itself about one-half, and in this way the treatment practically pays for itself.

To anyone interested we will gladly send booklet showing numerous roads which have been treated, with full data covering the subject.

Barrett Manufacturing Company

New York
Chicago

Philadelphia
Cincinnati

Minneapolis
Cleveland

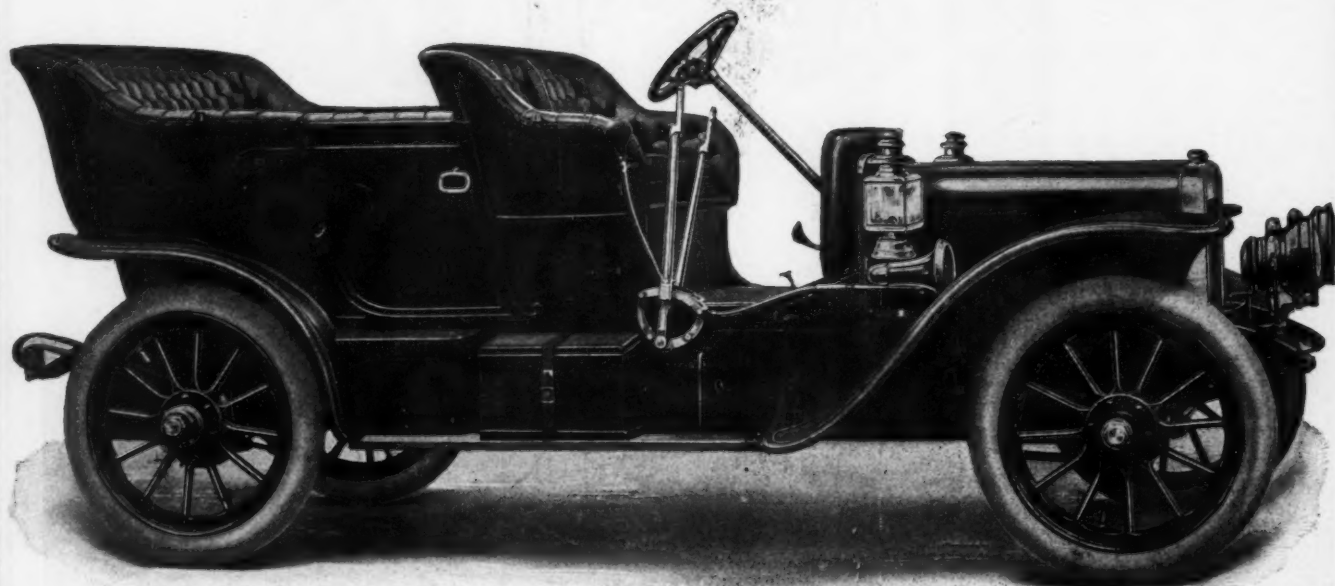


Kansas City
Boston

New Orleans
St. Louis

Allegheny
London, Eng.

WINTON



These Are The Facts

About the Long Island Automobile Club's Endurance Test:

Five cars, costing \$3,500 or more, made perfect scores in the original run of 200 miles in two days. These five participated in a second 200-mile run in one day. The course was over the worst possible roads and highest hills, part of it being like a ploughed field and part of deep sand. Two cars—a 40 H.P. and a 50 H.P.—fell by the wayside. The Winton Model M and two other cars costing more money made perfect scores.

Chas. A. Carlson, who drove the Winton, says:

"This record justifies my faith that there isn't a car in America at any price that can do better work than the Model M Winton. This particular car ran 6,000 miles before starting in the test, and was not especially prepared for the contest. Indeed, I have hardly looked into the motor since I bought the car last November. It went through both contests without a skip."

40 H.P., Model M, - \$3,500.
30 H.P., Type X-I-V, \$2,500.
In Runabout bodies at the same
prices. Limousines \$1000 higher.
Write for details of landaulets
and physician's coupes.

The Winton Motor Carriage Co.,

MEMBER A. L. A. M.

CLEVELAND, OHIO, U. S. A.

WINTON BRANCH HOUSES in New York, Boston, Philadelphia, Pittsburg,
Detroit, Chicago, Seattle and London.

TINCHER

1908

GUARANTEED
3
YEARS

The Krupp Chrome Nickel Steel Car

50-60 H.P. Chassis, - - \$5,250

50-60 H.P. Chassis, Body and Complete Equipment, - \$6,500

Watch these pages for more about the TINCHER

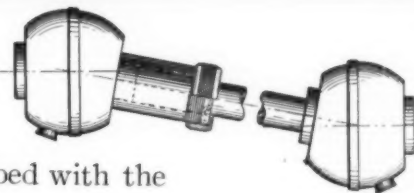
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TINCHER MOTOR CAR CO.

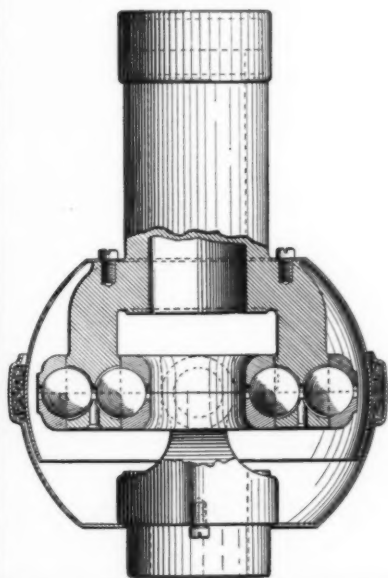
SOUTH BEND, INDIANA



For easy running
have your car equipped with the



K-B Ball Bearing Universal Joint



It is Simple, Strong and Durable.

All parts made from steel drop forgings.

All bearings are hardened and all parts are *guaranteed* interchangeable.

PERFECT LUBRICATION

Without doubt the best joint on the market.

Send specifications for your 1908 cars to the

Kinsler-Bennett Co.

62 Market Street

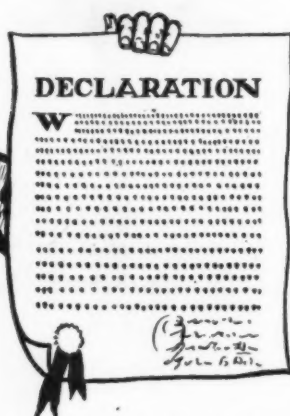
Hartford, Conn.



THE SPIRIT OF '76 Liberty! Independence!

which gave birth to this great country is as strong to-day in *commercial activities* as politically in '76. As the warm-hearted, sympathetic French nation, through its envoy, Lafayette, lent incalculable aid to the thirteen colonies in their righteous struggle for political independence, so Leon Rubay extends to the whole country, through the medium of FRENCH PRODUCTS, the means of dissolving forever the bonds which have bound motorists to the evils of poor ignition systems for the operation of Automobiles.

LAFAYETTE IN '76 — RUBAY IN 1907



I, LEON RUBAY, Sole Importer to the United States and Canada for the

J. LACOSTE & CIE.

**World Famous
Ignition Apparatus**

do hold these truths self-evident. The history of the average ignition system is a history of repeated troubles, and the time has come to throw off the yoke of *High Taxation at the battery without representation at the spark-plug*, by adopting the most reliable, effective and desirable outfits manufactured by J. Lacoste & Cie., of Paris, France.

Lacoste Coils

Famous wherever automobiles are used.

Lacoste Commutators

Used on all the highest-priced cars.

Lacoste Terminal gives perfect insulation with the advantage of being instantly removable. No short circuiting at the plug. No electric shocks when testing. A device adopted wherever seen.

Lacoste Magnetos

The strongest, most reliable, and best in the world.

Lacoste Spark Plugs

The plugs that are always dependable under all conditions.

AND TO STILL FURTHER ELIMINATE TROUBLES FOR THE AUTOIST, I IMPORT

M.a.B. BALL BEARINGS Used on the leading cars of Europe

BLERIoT LAMPS World famous for their light-giving quality.

Limousine Fittings and Michelin Tires

The high-grade quality of these products have won the appreciation of all who want THE BEST.

A cordial invitation is extended to all our customers and friends, and all persons interested in automobiling to visit my new salesroom, 1697 Broadway; or catalogue and prices will be sent upon request.

WRITE TO ME

LEON RUBAY

BOSTON—Leon Rubay, 226 Columbus Ave., N. E. Agency for Michelin Tires.

1697 BROADWAY, NEW YORK

'Phone, 6355 Columbus — Cable, "YABUR," New York

CHICAGO — Franco-American Auto Supply Co., 1406 Michigan Ave.

